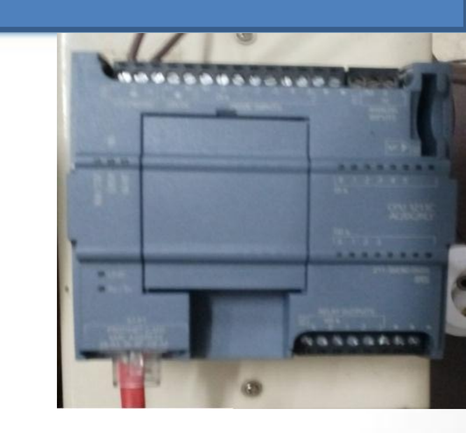
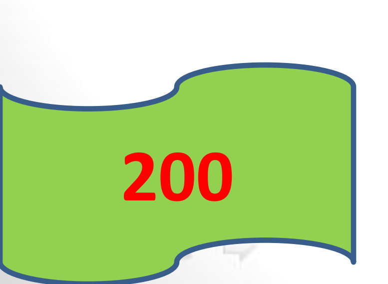


Programmable Logic Controller (PLC LEVEL 1)



Presented by: Eng./Mohammed Magdy
















September 29, 2016
Ref. No.: OB-160929-E04

CERTIFICATION

We, LSIS Co., Ltd.,
as the manufacturer of Electric and Automation Equipment with our main office located at LS Tower 1026-6, Hogye-Dong, Dongan-Gu, Anyang-Si, Gyeonggi-Do,KOREA, do hereby appoint

MR. MOHAMMED MAGDY EBRAHIM MOHAMED

From JELECOM, EGYPT

has successfully passed the training courses for
LSIS Automation & Drive products
and got this certificate as

Certified on behalf of the Company



J. K. Koo / Chairman

LSIS Co.,Ltd

LSIS Training Center
68, Wolmyeong-ro 201beon-gil, Heungdeok-gu,
Cheongju-si, Choong-buk, 28437, Korea








- **Automatic control field:**



1- classic control.

2- PLC level1.

3- PLC level2.

4- SCADA.

1- Traffic lights for two-direction way:

2- Garage Door control:

3- production line (advanced):

4- Mixing project (advanced):

RTU

MTU

Analog Alarm

Digital Alarm

overload

Digital screen

Activation Ti... Tag Name Message

CONTROL PANNEL

ACK

ACK ALL

Exit

RTU

MTU

AC DRIVE – TD200 SCREEN – PLC SIEMENS S7-200 CONNECTIONS:



L
N
L
N
U
V
W
AC DRIVE
MICROMASTER
420
3
4
5
6
8
5
R1
9
TD 200 Version 3
F1
F2
F3
F4
3
4
I 0
V 0
M 0
L+
M
L+
M
ANALOG EXPANSION
EM235
PLC SIEMENS S7-200
L
N
Q0.0
1L
13
L
N
R1
L
14

PLC COMPANIES:

Jelecom
Training For Excellence

ASIA

- -- LS(LG AS PREVIOUS)
- -- FATEK
- -- DELTA
- -- VERSAMAX

LS(LG AS PREVIOUS):
- -- MASTERK
- -- XGT-SERIES
- -- GLOFA

JAPAN

- -- OMRON
- -- MITSUBISHI
- -- TOSHIBA

USA

- -- ALLEN BRADELY

EUROPE

- -- SIEMENS
- -- SCHNIDER
- -- ABB

SIEMENS:
- -- S5
- -- LOGO
- -- S7-200 → MICROWIN
- -- S7-300 → SIMATIC MANAGER
- S7-400 → SIMATIC MANAGER
- -- S7-1200 → TIA
- -- S7-1500 → TIA

PLC SIEMENS S7:



SIMATIC S7 Controllers

Positioning of the controllers series

2009 2013 2014

Advanced	SIMATIC S7-400				SIMATIC S7-1500
Basic	SIMATIC S7-300				
Micro	SIMATIC S7-200				SIMATIC S7-1200

V10.5 V11 V12 V13



:PLC LEVEL 1 (BASICS PROGRAMMING)

١- التعرف على أشهر الحساسات المستخدمة فى نظام التحكم الألى.
٢- التعرف على جهاز PLC والفرق بينه وبين أنظمة التحكم الأخرى.
٣- معرفة توصيل المفاتيح المختلفة والحساسات على جهاز PLC وتصميم البرامج المناسبة لها.
٤- التعرف على أنواع التيمرات والعدادات داخل PLC وطرق التعامل معها.
٥- التعرف على الأوامر المرتبطة بذاكرة PLC وعمل التأمينات على المشروعات التى تحوى الجهاز.
٦- معرفة كيفية ربط سيرين معا مع عمل التأمينات اللازمة داخل البرنامج.
٧- معرفة كيفية تصميم مصعد به أربعة طوابق ويحتوى علي طلبات داخلية / خارجية.
٨- عمل خط انتاج ذو عمليات متعددة ملئ/ تغطية/ نقل من سير لاخر.
٩ – معرفة كيفية تصميم نظام تجميع لمكونات منتج يكرر نفسه ويتوقف بعد عدد معين من المرات.
١٠- الدوائر العملية على أجهز PLC SIEMENS S7-200 & S7-1200 :

- تشغيل وإيقاف موتور بمفتاح واحد.
- عكس حركة المحرك بشكل غير مباشر / مباشر .
- استخدام التيمر فى منع عكس الحركة المباشر للموتور للحفاظ على سلامة محور الدوران.
- فصل الموتور بعد عدد ساعات معينة متقطعة/ متواصلة من العمل لعمل الصيانة.

١١- عمل نظام جراج يتحكم فى الأبواب اتوماتيكيا و يدويا.
١٢- عمل خط إنتاج يتكون من ثلاثة أنظمة: إيقاف مؤقت للوعاء– إيقاف دائم للوعاء – ملئ الوعاء بتسلسل فردى/زوجى .
١٣- استخدام برامج محاكاة مثل: S7-200 SIMULATOR – PC SIMU – LOGIXPRO



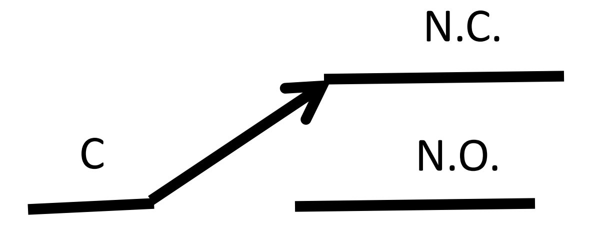




SENSORS:



DIGITAL (SWITCH)



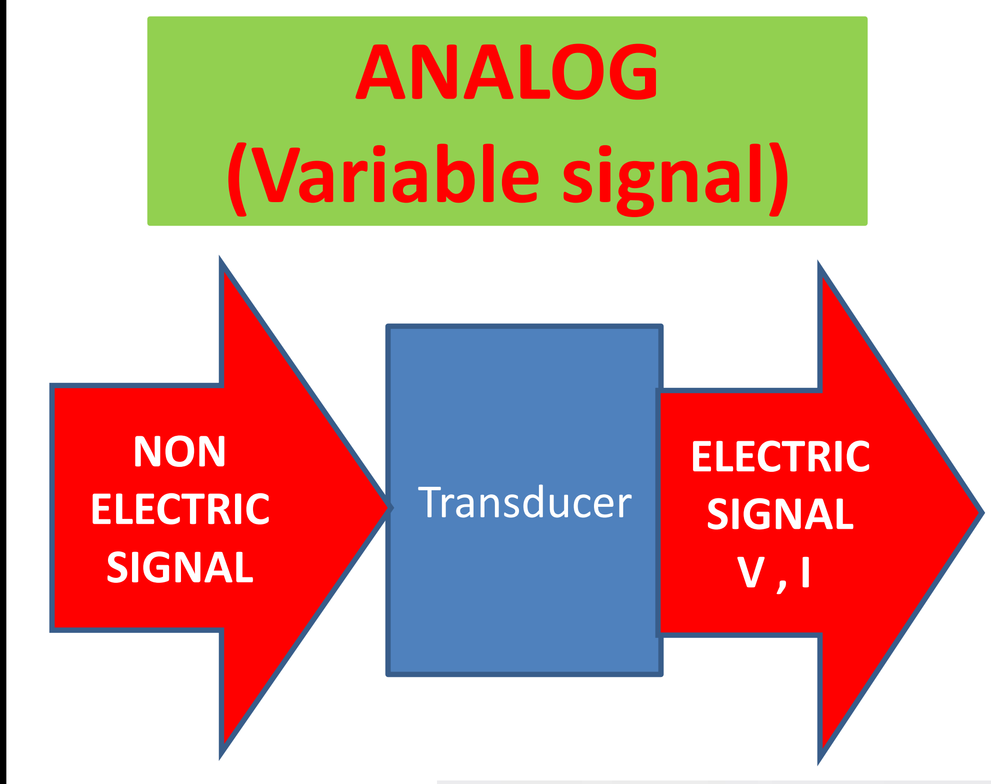
1	CONTACT CHANGE
0	CONTACT BACK

EX.:

Digital Temperature sensor



ANALOG (Variable signal)



EX.:

Analog Temperature sensor (THERMOCOUPLE)

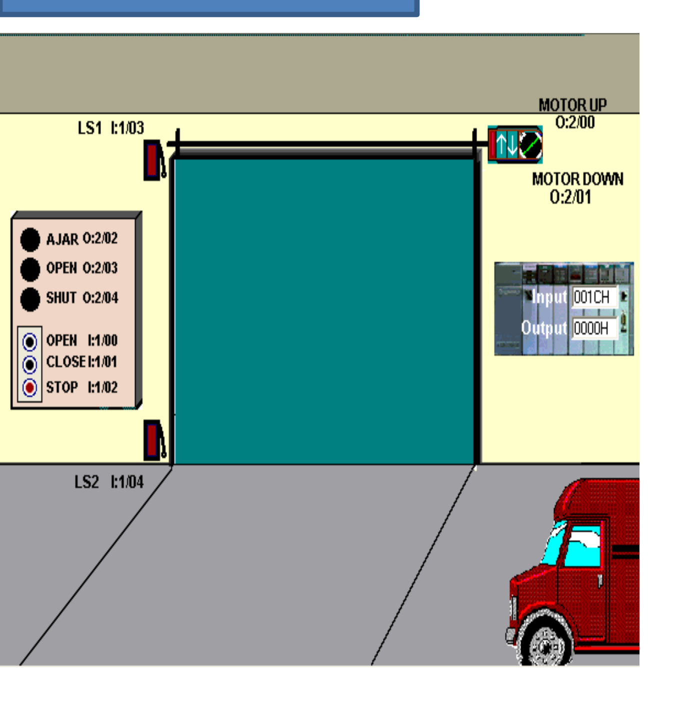


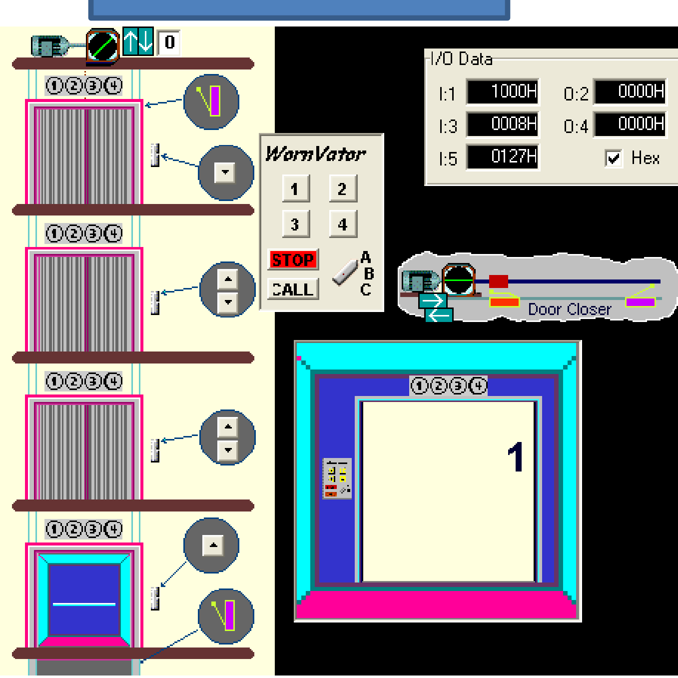
LIMIT SWITCH:

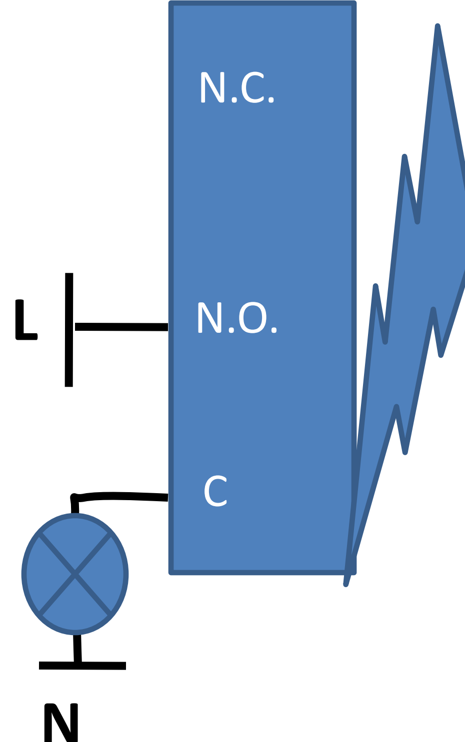




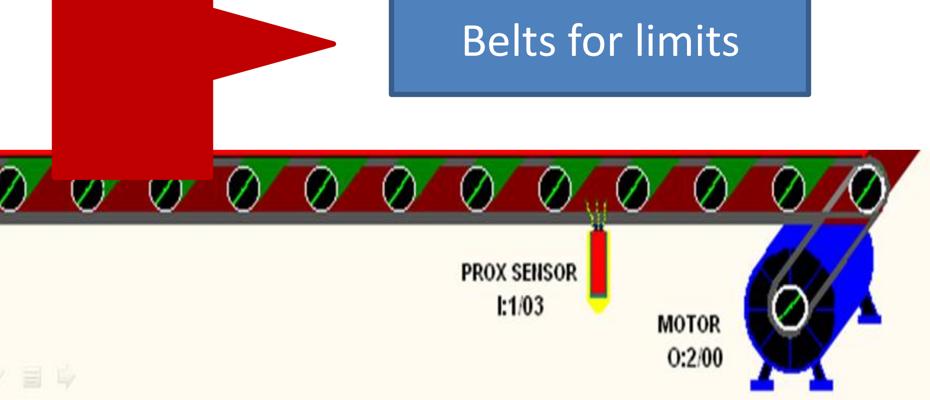
ELEVATOR







Belts for limits



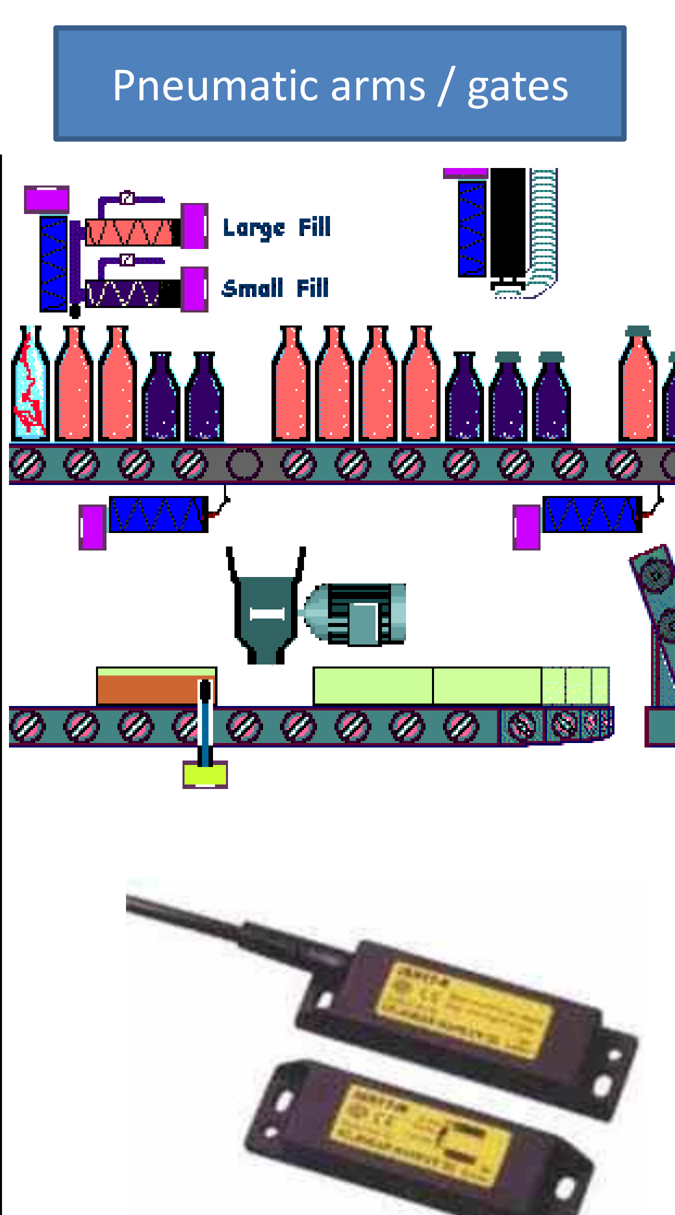


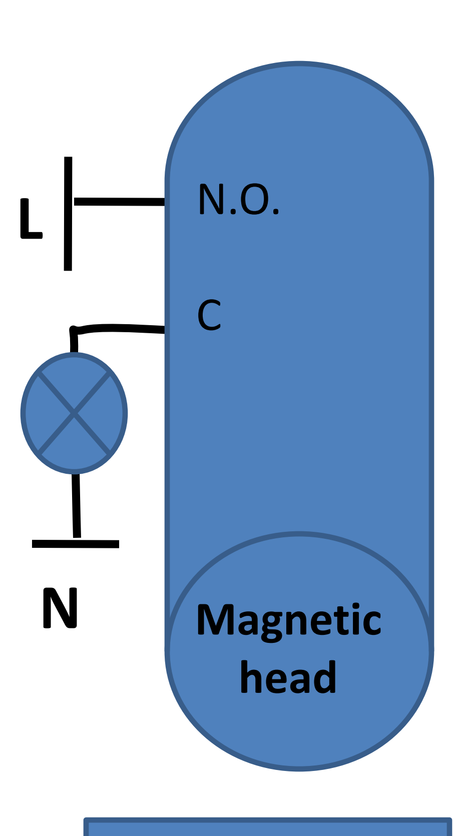


MAGNETIC SWITCH:



ELEVATOR





Magnetic slide

Proximity SENSOR:





Inductive	Capacitive
For metals only	For metals and non metals

PNP	NPN
POSITIVE SIGNAL	NEGATIVE SIGNAL

لا يستخدم هذا الحساس فى الحالات الأتية:

1- مع المواد الساخنة (لاحتوائه على الترانزستور).

2- مع المواد اللزجة (لوجود المادة البلاستيكية الأمامية).

Proximity SENSOR:



PNP	NPN

PNP

POWER SUPPLY
+
--

بنى
أسود
أبيض
أزرق

+
N.O.
N.C.
--
PNP

LOAD

NPN

POWER SUPPLY
+
--

بنى
أبيض
أسود
أزرق

+
N.C.
N.O.
--
NPN

LOAD



How to convert PNP to NPN?



POWER SUPPLY

+

--

PNP

+

N.O.

N.C.

--

R1 (DC)

R1

O/P = - Ve

Level sensor:



Vertical Stainless

Vertical Plastic/Multi Level

Custom Solutions

Horizontal Stainless

Horizontal plastic

Suspended

FLOWMETER 1 I:1/05

PUMP 1 O:2/01

FLOWMETER 2 I:1/06

PUMP 2 O:2/02

MIXER O:2/00

HI-LEVEL I:1/04

LO-LEVEL I:1/03

Batch Mix Simulator

Enter

A B C

Run

Idle

Full

Start

Stop

Input I:1 0202H

Input I:3 0000H

Output O:2 0000H

Output O:4 0000H

THERMOSTAT I:1/02

32

16

T

PUMP 3 O:2/03

FLOWMETER 3 I:1/07

HEATER O:2/04

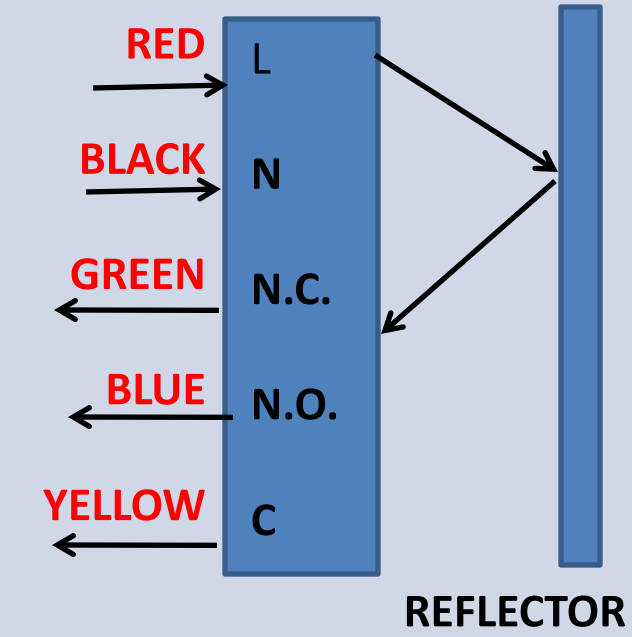
PHOTO SENSOR:

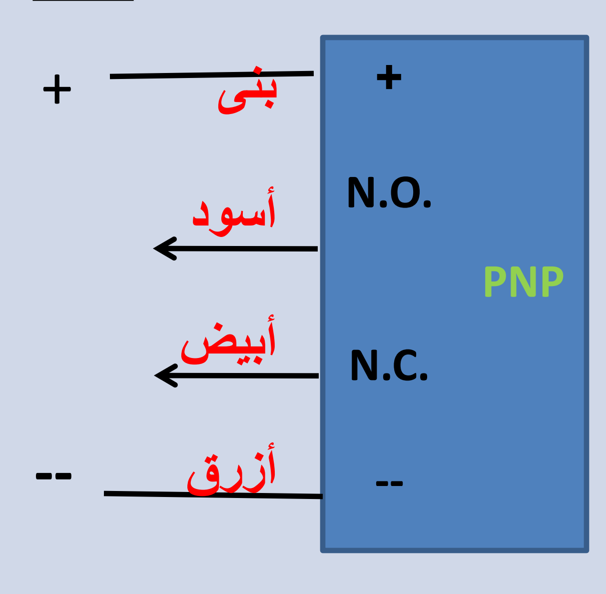






With reflector	Without reflector
EX.:	EX.:





PLC HARDWARE:



1- CPU المعالج
2- MEMORY الذاكرة
3- I/P&O/P PORTS نقاط الدخل/الخرج
4- CONNECTION PORT مكان برمجة
5- POWER SUPPLY(IF EXISTED) (ليس شرط)موحد للجهد

Input circuit	CPU	Memory	Output circuit

Input Relays	Counters	Output Relays
Internal Utility Relays	Timers	Data Storage

PLC TYPES:

Jelecom
Training For Excellence

COMBACT PLC وحدة مجمعة

Rack Mounting PLC (Modular PLC) كروت على راكات

EXPANSION UNIT:



هى وحدات ملحقة بال PLC تعزز من أداؤه ولها عدد محدد وفقا لنوع CPU حيث تكون متصلة بذاكرة ومعالج ال PLC وتضاف لأحد الأسباب الأتية:

1- زيادة عدد نقاط الدخل والخرج DIGITAL .

2- زيادة/إضافة عدد نقاط الدخل والخرج ANALOG.

3- تمكين PLC من الوجود فى شبكة مع أجهزة أخرى.

SIEMENS
SIMATIC
S7-200
SF
RUN
STOP
CPU 224
0 1 2 3 4 5 6 7 0 1
0 1 2 3 4 5 6 7 0 1 2 3 4 5

0
EM223
4 x I D
4 x QD
0 1 2 3
0 1 2 3

1
EM235
AI 4x12 Bit
AQ 1x12 Bit

2
EM223
8 x I D
8 x QD
0 1 2 3 4 5 6 7
0 1 2 3 4 5 6 7

3

4

PPI CABLE CONNECTION:



pc1
eng.pro
الوحدة الثالثة.pdf
SAP2000.exe - Shortcut

Open
Run Sandboxed
Manage
Map network drive...
Disconnect network drive...
Create shortcut
Delete
Rename
Properties

txtbook.pdf
- Shortcut

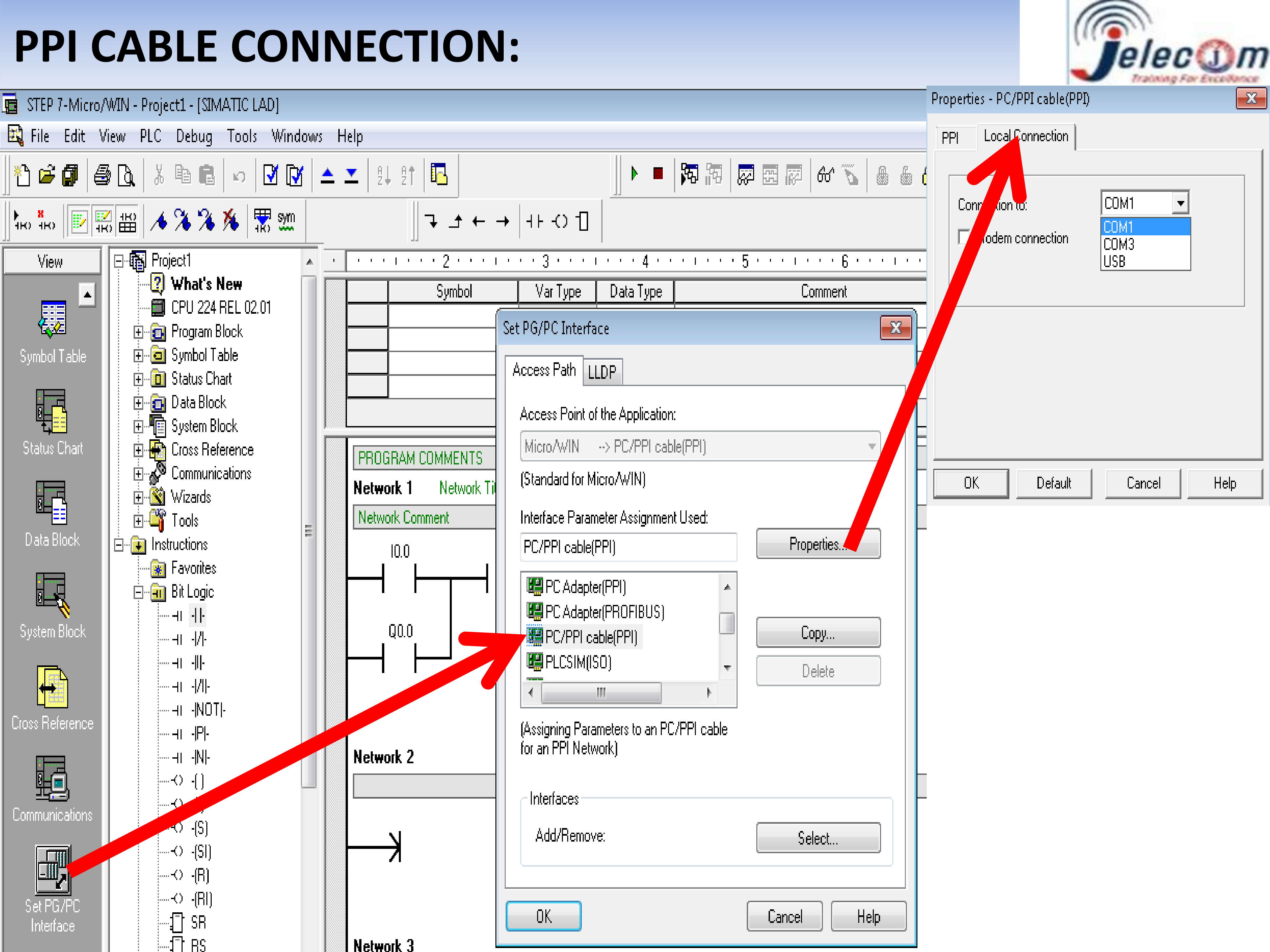
Computer Management

File Action View Help

Computer Management (Local
- System Tools
  - Task Scheduler
  - Event Viewer
  - Shared Folders
  - Local Users and Groups
  - Performance
  - Device Manager
- Storage
  - Disk Management
- Services and Applications

pc1
- Computer
- Disk drives
- Display adapters
- DVD/CD-ROM drives
- Floppy drive controllers
- Human Interface Devices
- IDE ATA/ATAPI controllers
- Keyboards
- Mice and other pointing devices
- Monitors
- Network adapters
- Ports (COM & LPT)
  - Intel(R) Active Management Technology - SOL (COM3)
  - Nuvoton Communications Port (COM1)
- Processors
- SIMATIC NET
- Sound, video and game controllers
- System devices
- Universal Serial Bus controllers

PPI CABLE CONNECTION:



PLC SIEMENS S7-200 HARDWARE:



CPU STATUS LEDS

SF

RUN

STOP

1L Q0.0 Q0.1 Q0.2 Q0.3 2L Q0.4 Q0.5 Q0.6 Q0.7

N L

RUN
TERM
STOP

0 1

TO EXPANSION UNIT

TO RS232

1M I0.0 I0.1 I0.2 I0.3

M- L+

TWO ANALOG
ADJUSTMENT

CPU 224
85- 264 VAC SUPPLY
DI 14 X 24VDC 15 – 30 V
DO 10 X RLY 30VDC /250V 2A

PLC SIEMENS S7-200 connections:



--المفاتيح والحساسات توصل على الدخل والاحمال على الخرج

--لا يوصل الحمل على الخرج مباشرة بل باستخدام وسيط وهو الريلاى او الكونتاكتور

PLC SIEMENS S7-200 catalogue:



This unit is similar to cpu224

Outputs (30 VDC/250 VAC)

Power supply

N (-)
L (+)
N (-)
L (+)
N (-)
L (+)

RELAY OUTPUTS 1L 0.0 0.1 0.2 0.3 • 2L 0.4 0.5 0.6 • 3L 0.7 1.0 1.1 ⏚ N L1 VAC 85–264

Note:
1. Actual component values may vary.
2. Connect AC line to the L terminal.
3. DC circuit grounds are optional.

470 Ω

3.3 KΩ

DC 24V INPUTS 1M 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 2M 1.0 1.1 1.2 1.3 1.4 1.5 M L+ DC SENSOR SUPPLY

+
+

24 VDC power for input sensors or expansion modules (280 mA)

Inputs (15 VDC to 30 VDC)

Figure A-10 Connector Terminal Identification for CPU 214 AC/DC/Relay

PLC SIEMENS S7-200 catalogue:



A.12 CPU 214 AC Power Supply, Sourcing DC Inputs, Relay Outputs

This unit is similar to cpu224

Order Number: 6ES7 214-1BC10-0XB0

General Features	
Physical size (L x W x D)	197 x 80 x 62 mm (7.76 x 3.15 x 2.44 in.)
Weight	0.5 kg (1.0 lbs.)
Power dissipation	9 W
User program size/storage	2 Kwords/EEPROM
User data size/storage	2 Kwords/RAM
Data and TOD retention	
Supercap	190 hr typ. (120 hr minimum at 40° C)
Optional battery	200 days continuous usage
Local I/O[1]	14 inputs/10 outputs
Max. I/O expansion modules	7
Digital I/O supported	64 inputs/64 outputs
Analog I/O supported	16 inputs/16 outputs
Boolean execution speed	0.8 µs/instruction
Internal memory bits	256
Timers	128 timers
Counters	128 counters
High-speed counters	1 software (2 KHz max.) 2 hardware (7 KHz max. ea.)
TOD clock tolerance	6 minutes per month
Pulse outputs	Not recommended
Analog adjustments	2
Standards compliance	UL 508 CSA C22.2 142 FM Class I, Division 2 VDE 0160 compliant CE compliant

Input Points	
Type	Sourcing
Input voltage range	15 to 30 VDC, 35 VDC for 500 ms
ON state	4 mA minimum
OFF state	1 mA maximum
Maximum response time	
I0.0 to I1.5	0.2 ms to 8.7 ms selectable 0.2 ms default
I0.6 to I1.5 as used by HSC1 and HSC2	30 µs typical/70 µs max.
Optical isolation	500 VAC, 1 min

Output Points	
Output type	Relay, dry contact
Voltage range	5 to 30 VDC/250 VAC
Maximum load current	2 A /point, 8 A/common
Overcurrent surge	7 A with contacts closed
Isolation resistance	100 MΩ minimum (new)
Switching delay	10 ms maximum
Lifetime	10,000,000 mechanical 100,000 with rated load
Contact resistance	200 mΩ maximum (new)
Isolation	
Coil to contact	1500 VAC, 1 min
Contact to contact (Between open contacts)	750 VAC, 1 min
Short circuit protection	None

Power Supply	
Voltage/frequency range	85 to 264 VAC at 47 to 63 Hz
Input current	4.5 VA typical, CPU only 50 VA max. load
Holdup time	20 ms min. from 110 VAC
Inrush current	20 A peak at 264 VAC
Fusing (non-replaceable)	2 A, 250 V, slow blow
5 VDC current	340 mA for CPU 660 mA for expansion I/O
Isolated	Yes. Transformer, 1500 VAC, 1 min

DC Sensor Supply	
Voltage range	20.4 to 28.8 VDC
Ripple/noise (<10MHz)	1 V peak-to-peak maximum
24 VDC available current	280 mA
Short circuit current limit	< 600 mA
Isolated	No

LOOK AT OTHER PLCS SIEMENS S7-200 IN CATALOGUE:

Figure A-8 Connector Terminal Identification for CPU 212 AC/AC/Relay

Figure A-2 Connector Terminal Identification for CPU 212 DC/DC/DC

PLC SIEMENS S7-200 MEMORY AREAS:



Accessed by:	Memory Type	CPU 221	CPU 222	CPU 224	CPU 226
Bit (*Byte.bit*)	V	0.0 - 2047.7	0.0 - 2047.7	0.0 - 5119.7 V 1.22 0.0 - 8191.7 V 2.00 0.0 - 10239.7 XP	0.0 - 5119.7 V 1.23 0.0 - 10239.7 V 2.00
	I	0.0 - 15.7	0.0 - 15.7	0.0 - 15.7	0.0 - 15.7
	Q	0.0 - 15.7	0.0 - 15.7	0.0 - 15.7	0.0 - 15.7
	M	0.0 - 31.7	0.0 - 31.7	0.0 - 31.7	0.0 - 31.7

PLC SIEMENS S7-200 MEMORY:



BIT:

[Memory Area] [Byte] .[Bit]   EX.: M0.0 / Q0.0 / I0.0 / V0.0

Q - AREA

7	6	5	4	3	2	1	0	
Q0.7					Q0.2	Q0.1	Q0.0	0
							Q1.0	1
								2
								3
								.

I - AREA

7	6	5	4	3	2	1	0	
I0.7					I0.2	I0.1	I0.0	0
							I1.0	1
								2

LINE / LADDER DIAGRAM:



Symbol	Component	Ladder symbol
	START	┤├
	STOP	
	RELAY	
	STOP	┤/├
	START	
	RELAY	
	RELAY	—( )

START/ STOP USING 1N.O., 1N.C.:



PROGRAM COMMENTS

Network 1 Network Title

Network Comment

I0.0 I0.1 Q0.0

Q0.0

N

L

14

R1

13

IL Q0.0 N L

IM I0.0 I0.1 M L+

on off

R1

9 5

L +

موحد
للجهد

DC

M

N - -

START/ STOP USING 1N.C., 1N.O.:



PROGRAM COMMENTS

Network 1 Network Title

Network Comment

I0.0 I0.1 Q0.0

Q0.0

N

L

14

R1

13

IL Q0.0 N L

IM I0.0 I0.1 M L+

on off

R1

9

5

L

+

DC

موحد
للجهد

M

N

- -

START/ STOP USING 1N.C., 1N.C.:



PROGRAM COMMENTS

Network 1 Network Title

Network Comment

I0.0 / I0.1 Q0.0 ( )

Q0.0

N
L
14
R1
13
IL
Q0.0
N
L
IM
I0.0
I0.1
M
L+
on
off

R1
9
5
L
+
DC
موحد
للجهد
M
N
- -

START/ STOP USING 1N.O., 1N.O.:



PROGRAM COMMENTS

Network 1 Network Title

Network Comment

I0.0 I0.1 Q0.0

Q0.0

N
L
14
R1
13
IL
Q0.0
N
L
IM
I0.0
I0.1
M
L+
on off

R1
9
5
L
+
DC
موحد للجهد
M
N
- -

INDIRECT REVERSE FOR MOTOR:



\+ --
5 1
R1
9
DC
M
9
R2
5 1
\+ --

Network 1 Network Title
Network Comment
I0.0 I0.2 Q0.1 Q0.0
Q0.0

Network 2 Network Title
Network Comment
I0.1 I0.2 Q0.0 Q0.1
Q0.1

N
L
14 14
R1 R2
13 13
IL Q0.0 Q0.1 N L
IM I0.0 I0.1 I0.2 M L+
ONF ONR off

DIRECT REVERSE FOR MOTOR:



Network 3 Network Title
Network Comment

I0.0 I0.2 I0.1 Q0.0

Q0.0

Network 4 Network Title
Network Comment

I0.1 I0.2 I0.0 Q0.1

Q0.1

+ --
5 1
R1
9
M DC
9
R2
5 1
+ --

N
L
R1 14 13
R2 14 13

IL Q0.0 Q0.1 N L

IM I0.0 I0.1 I0.2 M L+

ONF ONR off

S7-200 SIMULATOR:



STEP 7-Micro/WIN - Project1 - [SIMATIC LAD]

File Edit View PLC Debug Tools Windows Help

New Ctrl+N
Open... Ctrl+O
Close
Save Ctrl+S
Save As...
Set Password...
Import...
Export...
Upload... Ctrl+U
Download... Ctrl+D
Create Library...
Add/Remove Libraries...
Library Memory...
Page Setup...
Print Preview
Print... Ctrl+P
1 D:\magdy\Project1.mwp
2 elevator project.mwp
3 elevator project.mwp
4 H:\Project1 cnc.mwp
Exit

	Symbol	Var Type	Data
		TEMP	
		TEMP	
		TEMP	
		TEMP	

Network 1 Network Title
Network Comment
I0.0 I0.1 Q0.0
Q0.0

Network 2

Network 3

Export Program Block
Save in: Desktop
Libraries
System Folder
pc1
System Folder
Computer
File name: MAGDY
Save as type: Text File (*.awl)
Save
Cancel

S7-200 SIMULATOR:



- S7_200

Program View Configuration PLC View/Hide Help

AWL KOP DB1

0

SIEMENS

SF
RUN
STOP

I0.0 I0.1 I0.2 I0.3 I0.4 I0.5 I0.6 I0.7

I1.0 I1.1 I1.2 I1.3 I1.4 I1.5

Q0.0 Q0.1 Q0.2 Q0.3 Q0.4 Q0.5 Q0.6 Q0.7

Q1.0 Q1.1

CPU 214

SIMATIC
S7-200

DOUBLE CLICK

6596

Password fron access to S7-200

Introduce the access key

OK

Cancel

CPU Type

Select or Read CPU type to be used (If you would like the software to be limited to options available to a pre-existing CPU type)

CPU type: CPU 214

Read type of CPU

CPU :

None
CPU 212
CPU 214
CPU 215
CPU 216
CPU 221
CPU 222
CPU 224
CPU 224XP
CPU 226
CPU226XM

Accept

Cancel

S7-200 SIMULATOR:



- S7_200

Program View Configuration PLC View/Hide Help

AWL KOP DB1

SIEMENS
SIMATIC
S7-200
SF
RUN
STOP

CPU 224

Load in CPU

- [x] All
- [x] Logic Block
- [x] Data Block
- [x] Configuration CPU

Accept
Cancel

Import from
- ( ) Microwin V3.1
- (•) Microwin V3.2, V4.0

- S7_200

Program View Configuration PLC View/Hide Help

AWL KOP DB1

SIEMENS
SIMATIC
S7-200
SF
RUN
STOP

CPU 224

MAGDY

KOP

ORGANIZATION_BLOCK MAIN:OB1

Network 1 // Network Title

I0.1 Q0.0

Q0.0

SUBROUTINE_BLOCK SBR_0:SBR0

Network 1 // Network Title

0 1 2 3 4 5 6 7 0 1 2 3 4 5



PC SIMU:



PC_SIMU

File Edit Draw Mode Analyzer View Help

Edition
Simulation
Connection
Initiation
End

Password: 9966

Button

Name: Pulsador
Entry: I 0 0
Normally Open (NO)
Normally Closed (NC)
Form: Round, Square
Color: Black, Red, Blue, Magenta, Green, Yellow, Cian, White
OK
Cancel

Button

Name: Pulsador
Entry: I 0 1
Normally Open (NO)
Normally Closed (NC)
Form: Round, Square
Color: Black, Red, Blue, Magenta, Green, Yellow, Cian, White
OK
Cancel

Motor

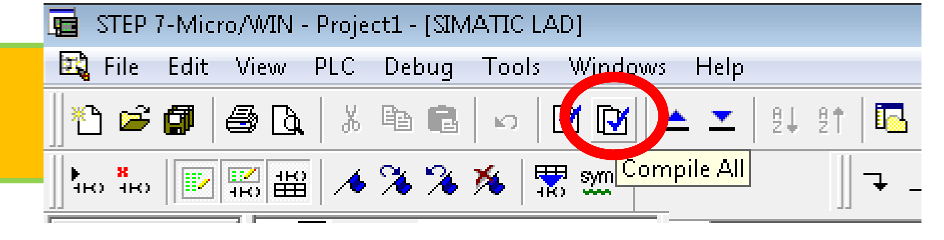
Name: Motor
Turn right out: Q 0 0
Turn left out: Q 0 1
Motor speed: 3000, 1500, 1000, 750
Variable speed
Output drive speed.: AQ 0
Frequency min. 1
Frequency max. 100
Margin analog: Unipolar, Bipolar
OK
Cancel

Make the ex
Edicin
Stop

PLC ERRORS:



SYNTAX ERROR:



هى أخطاء ضد قواعد البرمجة ويكتشفها البرنامج

LOGIC ERROR:

هى أخطاء منطقية ولا يكتشفها البرنامج مثل: عدم وضع الريشة التعويضية / ريشة الانترلوك

RUN TIME ERROR:

هى أخطاء تظهر أثناء التشغيل وقد تؤثر على سير البرنامج

TIMING DIAGRAM:



INPUT

signal

No signal

OUTPUT

on

off

Rising edge
/
+ Ve edge

Falling edge
/
-- Ve edge

MONITOR (on line) IN MICROWIN:



STEP 7-Micro/WIN - Project1 - [SIMATIC LAD]

File Edit View PLC Debug Tools Windows Help

View

Program Block

Symbol Table

Status Chart

Data Block

System Block

Cross Reference

Communications

Set PG/PC Interface

Tools

Project1
- What's New
- CPU 224 REL 02.01
- Program Block
- Symbol Table
- Status Chart
- Data Block
- System Block
- Cross Reference
- Communications
- Wizards
- Tools

Instructions
- Favorites
- Bit Logic
  - -| |-
  - -|/|-
  - -|I|-
  - -|/I|-
  - -|NOT|-
  - -|P|-
  - -|N|-
  - -( )
  - -(I)
  - -(S)
  - -(SI)
  - -(R)
  - -(RI)
  - SR
  - RS
  - NOP
- Clock
- Communications
- Compare

	Symbol	Var Type	Data Type	Comment
		TEMP		
		TEMP		
		TEMP		
		TEMP		

Monitor

PROGRAM COMMENTS

Network 1 Network Title

Network Comment

I0.0=OFF I0.1=OFF Q0.0=ON

Q0.0=ON

Network 2

Network 3

MAIN SBR_0 INT_0

MONITOR (on line) IN MICROWIN :



STEP 7-Micro/WIN - Project1 - [SIMATIC LAD]

File Edit View PLC Debug Tools Windows Help

View

Program Block

Symbol Table

Status Chart

Data Block

System Block

Cross Reference

Communications

Project1
- What's Ne
- CPU 224 RE
- Program Bloc
- Symbol Tabl
- Status Chart
- Data Block
- System Bl
- Cross Refere
- Communicati
- Wizards
- Tools

Instructions
- Favorites
- Bit Logic
  - -| |-
  - -|/|-
  - -|I|-
  - -|/I|-
  - -|NOT|-
  - -|P|-
  - -|N|-
  - -( )
  - -(I)
  - -(S)
  - -(SI)
  - -(R)
  - -(RI)

	Symbol	Var Type	Data Type
		TEMP	
		TEMP	
		TEMP	
		TEMP	

PROGRAM COMMENTS

Network 1 Network Title

I0.0 I0.1 M0.0

M0.0

Network 2

M0.0 I0.2 Q0.0

C0

MONITOR (on line) IN MICROWIN :



STEP 7-Micro/WIN - Project1 - [Status Chart]

File Edit View PLC Debug Tools Windows Help

	Address	Format	Current Value	New Value
1	I0.0	Bit		
2	I0.1	Bit		
3	I0.2	Bit		
4	C0	Signed		
5		Signed		

View: Program Block, Symbol Table, Status Chart

Project1: What's New, CPU 224 REL, Program Block, Symbol Table, Status Chart, Data Block, System Block, Cross Reference, Communications, Wizards, Tools, Instructions

راقب هذه القيم عند وجود مشكلات فى النظام لمعرفة الحساس التالف أو مكان الخلل

TIMING DIAGRAM(on line) IN MICROWIN :



STEP 7-Micro/WIN - Project1 - [Status Chart]

File Edit View PLC Debug Tools Windows Help

أحيانا نرسم المدخلات والمخرجات لأنها
أسرع فى الملاحظة على الشاشة من الكتابة
فإذا زاد الضغط مثلا إلى حد كبير فالرسم
يوضح ويلفت الانتباه عن الكتابة

SET/RESET:



PROGRAM COMMENTS

Network 1 Network Title

Network Comment

I0.0 Q0.0 (S) 1

STARTING BIT

NO. OF BITS

Network 2

I0.1 Q0.0 (R) 1

I0.0

I0.1

Q0.0

SET/RESET:



Network 1 Network Title

I0.0 Q0.0

(S)

10

STARTING BIT

NO. OF BITS

Network 2

I0.1 Q2.0

(R)

4

Q - AREA

	7	6	5	4	3	2	1	0
0	1	1	1	1	1	1	1	1
1							1	1
2					0	0	0	0
3								
.								

SET/RESET TOGETHER:



PROGRAM COMMENTS

Network 1 Network Title

Network Comment

I0.0 — Q0.0 (S) 1

Network 2

I0.1 — Q0.0 (R) 1

PROGRAM COMMENTS

Network 1

I0.0 — Q0.0 (R) 1

Network 2 Network Title

Network Comment

I0.1 — Q0.0 (S) 1

I0.0

I0.1

Q0.0

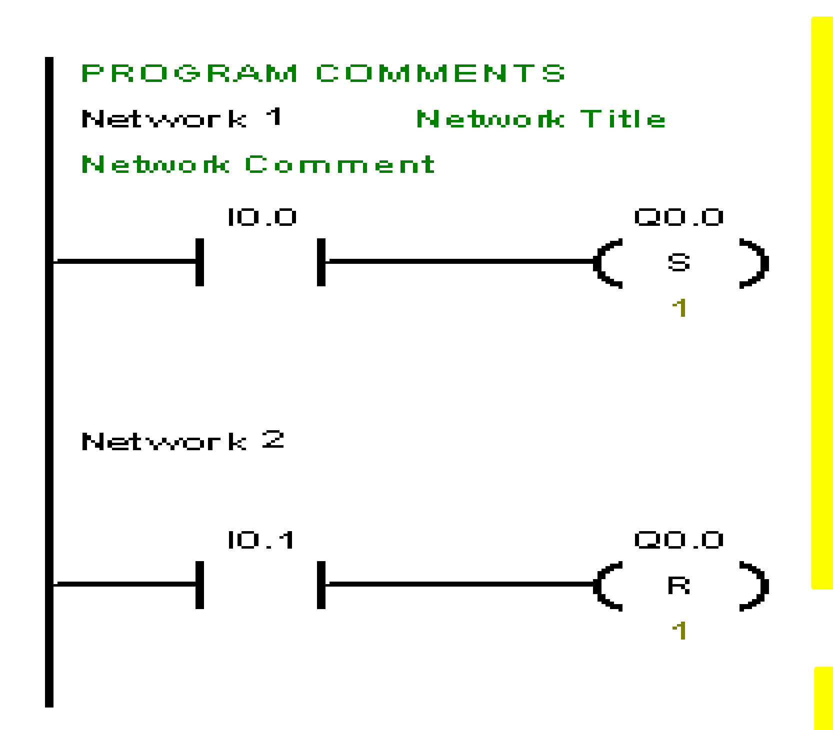
I0.1

I0.0

Q0.0

SET/RESET TOGETHER:





إذا وجدت إشارة لأمرى SET و RESET معا فإن البرنامج يعطى الأولوية لأخر نتورك NETWORK

قطع الإشارة عن SET لا يضع 0 وقطع الإشارة عن RESET لا يضع 1

MARKER (INTERNAL RELAY):



هى مساحة تخزينية مماثلة ل Q-area ولكن لا يوصل عليها وتستخدم فى الحالات الأتية:

1- الايقاف المؤقت للخرج TEMPORARY STOPPING.

2- منع تكرار الخرج بنفس الاسم داخل البرنامج REPEATED O/P.

3- امكانية ايقاف كل الاحمال الموصلة على جهاز PLC فى أى وقت.

4- تخزين البيانات DATA STORAGE.

M - AREA

7	6	5	4	3	2	1	0	
M0.7					M0.2	M0.1	M0.0	0
							M1.0	1
								2
								3
								.

MARKER (INTERNAL RELAY):



M-AREA	Q-AREA
M0.0 —| |—	Q0.0 —| |—
M0.0 —| / |—	Q0.0 —| / |—
M0.0 —(S) 1	Q0.0 —(S) 1
M0.0 —(R) 1	Q0.0 —(R) 1
M0.0 —( )	Q0.0 —( )
لا يوصل عليها	يوصل عليها



1- الايقاف المؤقت للخرج:

I0.3

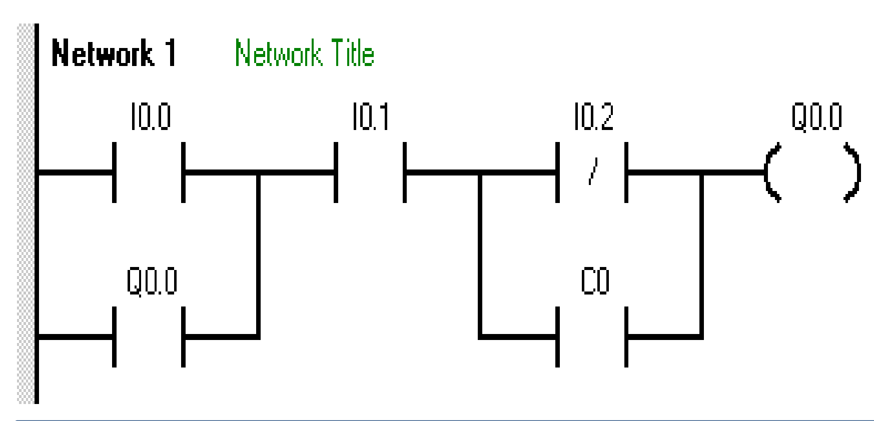
I0.2

Q0.0

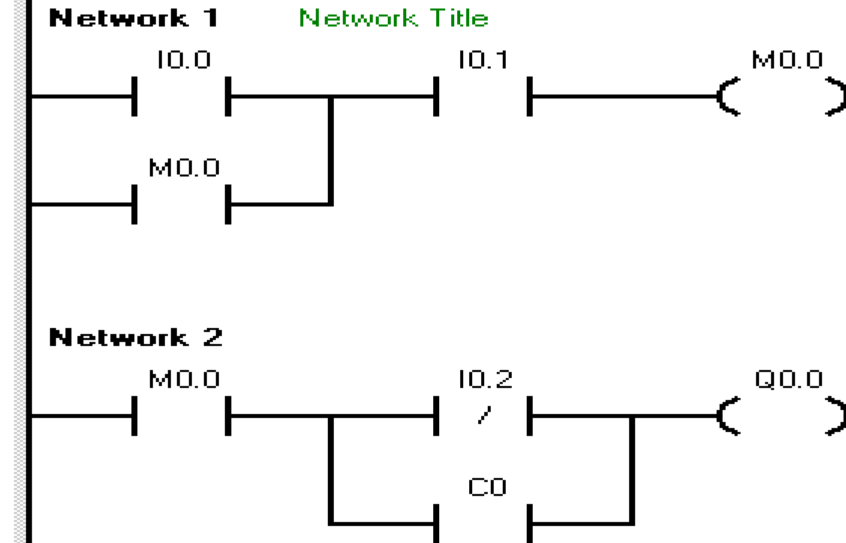
ON (I0.0)

OFF(I0.1)

إيقاف دائم PERMENANT



إيقاف موقت TEMPORARY





2- منع تكرار الخرج بنفس الاسم REPEATED O/P :

PROGRAM COMMENTS

Network 1

I0.0 — Q0.0

Network 2

I0.1 — Q0.0

Network 3

I0.2 — Q0.0

Repeated Q-area pins is a logic error

PROGRAM COMMENTS

Network 1

I0.0 — M0.0

Network 2

I0.1 — M0.1

Network 3

M0.0 / M0.1 — Q0.0



3- امكانية ايقاف كل الاحمال فى اى وقت:

I0.0 I0.1 M0.0

M0.0

M0.0 makes Q- area pins to be ON/OFF

Network 2

M0.0 ??.? ??.? Q0.0

Network 3

M0.0 ??.? ??.? Q0.1

Chocolate production project:

Cocoa Water Sugar Milk Butter

Start Stop Cocoa water sugar milk butter temperature Enter PROX SENSOR I:1/03 MOTOR O:2/00



4- تخزين البيانات DATA STORAGE :



للتعبير عن مفتاح أخضر للتشغيل ومفتاح أحمر للفصل مرسومان على شاشة HMI أو برنامج SCADA على شاشة كمبيوتر تستخدم المساحة M-AREA



ماكينة المقص الكهربى:

Limit2
I0.5

Limit1
I0.4

Limit 4
I0.7

Limit3
I0.6

المقص لأعلى Q0.5

المقص لأسفل Q0.4

الذراع لأعلى Q0.3

الذراع لأسفل Q0.2

MOTOR2
Q0.1

START I0.0

STOP I0.1

Photo2
I0.3

Photo1
I0.2

MOTOR1
Q0.0



ماكينة المقص الكهربى:

مطلوب الضغط على مفتاح التشغيل فيتحرك السيران k1 و k2 معا إلى أن يأتى المنتج المطلوب قطعه فيشعر الحساس PHOTO2 ثم PHOTO1 فيتوقف السيران K1 و K2 ويبدأ الذراع الضاغط لأسفل K3 الى ان يشعر LIM1 فيتوقف الذراع ثم ينزل المقص لأسفل K5 الى ان يشعر LIM3 فيتوقف المقص عن النزول ثم يبدأ المقص فى الصعود K6 الى ان يشعر الحساس LIM4 فيتوقف المقص عن الصعود ثم يبدأ الذراع الضاغط فى ترك المنتج والصعود لأعلى الى ان يشعر الحساس LIM2 فيتوقف الذراع عن الصعود ثم يبدأ السيرK1 فقط فى العمل الى ان يتحرك الجزء المقطوع ويصبح PHOTO1 لا يرى المنتج المقطوع فيبدأ السيران فى العمل معا مرة أخرى وتعاد العملية مرة أخرى.


Jelecom
Training For Excellence


ماكينة المقص الكهربى:



ماكينة المقص الكهربى:

Network 1 Network Title

I0.0 I0.1 M0.0

M0.0

Network 2

M0.0 I0.2 M0.3

I0.3 Q0.1

Network 3

M0.0 I0.2 I0.3 M0.2 Q0.3 Q0.2

M0.2 M0.1 Q0.5 Q0.4

M0.1 I0.7 Q0.4 Q0.5

I0.7 I0.5 Q0.2 Q0.3



ماكينة المقص الكهربى:

Network 4

I0.6 — M0.1 (S) 1

Network 5

I0.4 — M0.2 (S) 1

Network 6

I0.2 (/) — M0.1 (R) 2

Network 7

M0.0 — I0.5 — M0.2 — M0.4 ( )

Network 8

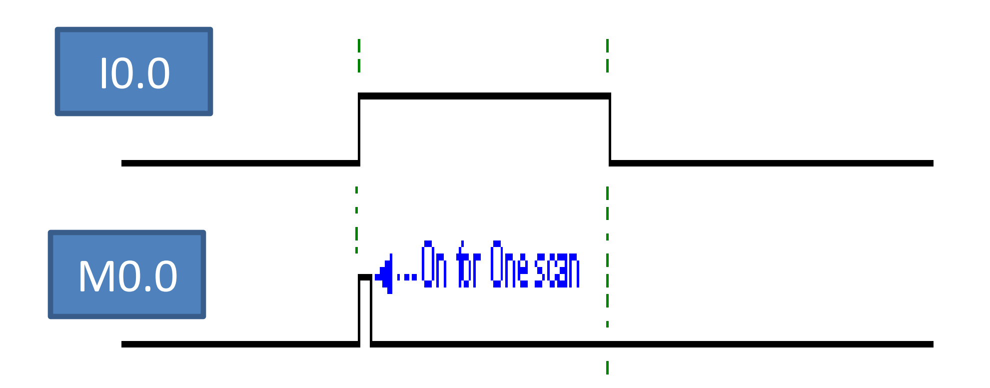
M0.3 — Q0.0 ( )

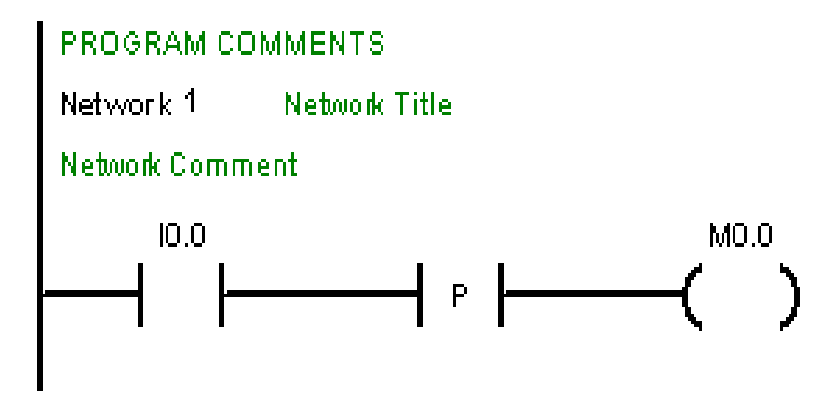
M0.4

Positive Edge Transition:



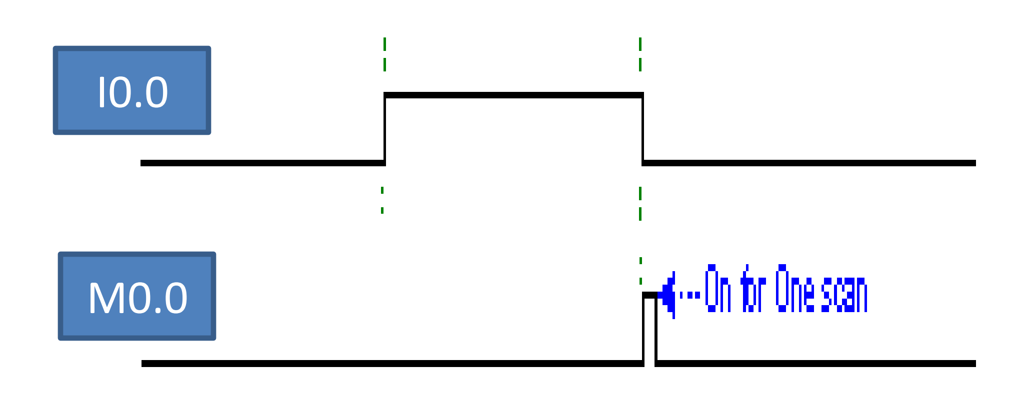


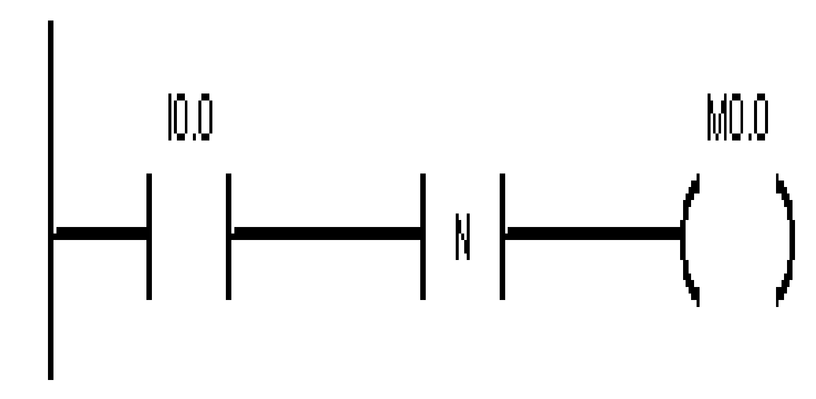




Negative Edge Transition:







Positive Edge Transition:



U1
AND
<TEXT>
U4 NOT
U3 NOT
U2 NOT

DELAY

Negative Edge Transition:

U1:A
2
3
1
74LS28
<TEXT>
U4 NOT
U3 NOT
U2 NOT

DELAY

Start / stop for motor using 1 N.O. P.B.:



PROGRAM COMMENTS

Network 1 Network Title

Network Comment

I0.0 P Q0.0 / M0.0 (S) 1

Q0.0 M0.0 (R) 1

I0.0

Q0.0

Network 2

M0.0 Q0.0 ( )

أمر positive edge يستخدم مثلا فى العمليات الحسابية لعمل عملية الجمع مرة واحدة عند كل ضغطة تذكر x=x+1;

Network 1

I0.0 P ADD_I EN ENO

x IN1 OUT x

1 IN2

Applications:
- Tank:



Q0.0

Q0.1

I0.3 (high level)

I0.2 (low level)

I0.4
(TEMP. SENSOR)

Q0.3

Q0.2

I0.5
(PHOTO)

ON (I0.0)

OFF(I0.1)

Q0.4

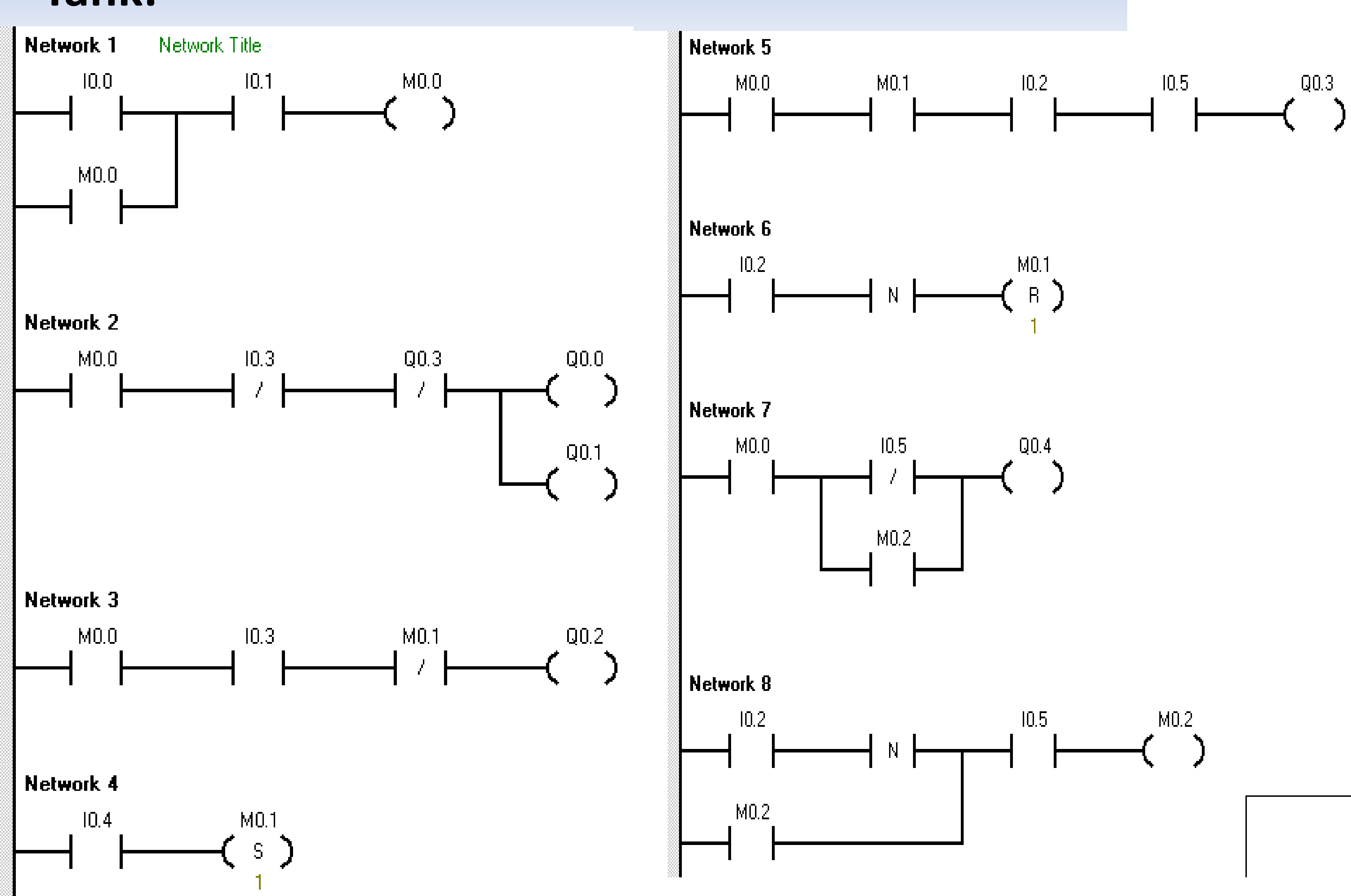
مطلوب الضغط على
مفتاح التشغيل فتعمل
المضختان q0.0 و
q0.1 إلى أن يشعر
الحساس i0.3 فتتوقف
المضختان ثم يعمل
السخان إلى أن يشعر
الحساس i0.4 فيتوقف
السخان ثم تعمل مضخة
السحب إلى أن يفرغ
الخزان i0.2 ولا بد من
وجود وعاء ولابد من
حركة الوعاء بعد أن
يملأ.

TANK:


jelecom
Training For Excellence

N
L
k1
k2
k3
k4
k5
IL
Q0.0
Q0.1
Q0.2
Q0.3
Q0.4
N
L
IM
I0.0
I0.1
I0.2
I0.3
I0.4
I0.5
M
L+
on
off
PHOTO (PNP)
L+
بنى
أسود
M--
ازرق

Applications:
- Tank:



PLC SIEMENS S7-200 TIMERS:



1- ON-DELAY TIMER (TON).

2- OFF-DELAY(TOF).

3- RETENTIVE ON-DELAY TIMER (TONR).

RES

TIME = RESOLUTION *PT

الزمن المطلوب

عدد النبضات

T - Area

PT (15-BIT)	ACC (15 -BIT)	BIT	T0
⋮	⋮	⋮	⋮
PT (15-BIT)	ACC (15 -BIT)	BIT	T255

PLC SIEMENS S7-200 TIMERS:



Timer Type	Resolution	Maximum Value	Timer Number
TONR	1 ms	32.767 s	T0, T64
	10 ms	327.67 s	T1-T4, T65-T68
	100 ms	3276.7 s	T5-T31, T69-T95
TON, TOF	1 ms	32.767 s	T32, T96
	10 ms	327.67 s	T33-T36, T97-T100
	100 ms	3276.7 s	T37-T63, T101-T255

PT = TIME(SECONDS) * 10 → RESOLUTION =100mS

For TON, TOF : T37-63 *** For TONR : T5 –T31

MAX. TIME = 100MS * 32767 = 3276.7 S = 55 MIN.

MIN. TIME = 1ms * 1 = 1ms

On –Delay TIMER (TON):



PROGRAM COMMENTS

Network 1 Network Title

Network Comment

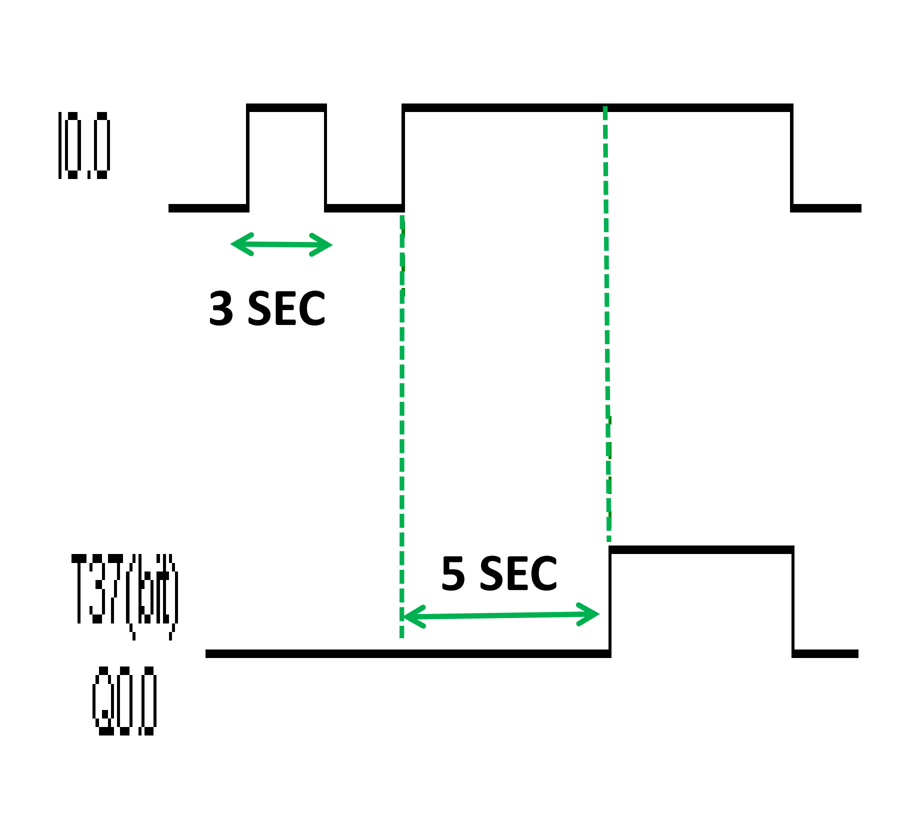
I0.0 T37

IN TON

50 PT 100 ms

Network 2

T37 Q0.0



تتبدل الريشة عند : عد التيمر ≥ العد المطلوب

MANY OPERATIONS ON PRODUCTION LINE:

Jelecom
Training For Excellence

START
(I0.0)

STOP
(I0.1)

5
seconds

5
seconds

I0.5

SOLENOID VALVE
Q0.1

SOLENOID VALVE
Q0.2

Q0.3

I0.2

I0.3

I0.4

I0.6

Q0.4

I0.7

MOTOR
Q0.0



عمليات متعددة على خط الإنتاج:

مطلوب الضغط على مفتاح التشغيل فيتحرك السير إلى ان يشعر الحساس I0.2 بالزجاجة فيتوقف السير ويبدأ الصب Q0.1 لمدة خمس ثوانى ثم يتحرك السير إلى أن يشعر الحساس I0.3 بالزجاجة فيتوقف السير ويبدأ الصب Q0.2لمدة خمس ثوانى أيضا ثم يتحرك السير إلى أن يشعر الحساس I0.4 بالزجاجة فيتوقف السير ويبدأ الكبس Q0.3إلى أن يشعر الحساس I0.5 فيعود الكباس ويتحرك السير إلى أن يشعر الحساس I0.6 بالزجاجة فيتوقف السير فيلتقط الذراع الالى الزجاجة Q0.4 (يتحرك لليمين ويلتقط ثم يتحرك لليسار إلى أن يشعر الحساس I0.7 LIMIT) فتنقطع الاشارة عن الذراع الالى ولاحظ أنه بمجرد التقاط الزجاجة من السير الأول يتحرك السير مرة أخرى(خط الانتاج بالكامل يعمل ب PLC بينما يعمل الذراع الالى بالميكروكنترولر).

عمليات متعددة على خط الإنتاج:

لاحظ ان هذا الذراع الالى مصمم باستخدام الميكروكنترولر ومجموعة من الريليهات واربعة مواتير والميكروكنترولرهو المتحكم فى حركة الذراع والالتقاط وكل ما عليك هو اعطاء الاشارة او قطعها (Q0.4 موصل بريلاى وتقوم ريشته بتوصيل الاشارة او قطعها عن الميكرو) ويتم قطع الاشارة عندما يعود الذراع لموضعه الاصلى (I0.7).. لاحظ ان الذراع فى البداية ملامس ل I0.7 ويعود اليه فى النهاية ايضا.

I0.5

Q0.4
RELAY
CONTACT

POWER SUPPLY
(5VDC)
+
--

VDD
VSS
MICROCONTROLLER
(EX.: PIC18F46K20)

هواء
مضغوط

Q0.5
Q0.3





عمليات متعددة على خط إنتاج:

MANY OPERATIONS ON PRODUCTION LINE:



Network 1 Network Title

Network Comment

I0.0 I0.1 M0.0

M0.0

Network 2

M0.0 Q0.1 Q0.2 Q0.3 I0.6 Q0.0

Network 3

M0.0 I0.2 T37 Q0.1

T37

IN TON

50 PT 100 ms

MANY OPERATIONS ON PRODUCTION LINE:



Network 4 Network Title

Network Comment

M0.0 I0.3 T38 / Q0.2 ( )

T38 IN TON

+50 PT

Network 5

M0.0 I0.4 M0.1 / Q0.3 ( )

Network 6

I0.5 M0.1 (S) 1

Network 7

I0.4 / M0.1 (R) 1

Network 8

M0.0 M0.2 M0.3 / Q0.4 ( )

Network 9

I0.6 M0.3 / M0.2 ( )

M0.2

Network 10

I0.7 P M0.3 ( )

Network 11

M0.0 Q0.3 / Q0.5 ( )

ELEVATOR:

Q0.0 Q0.1

I0.7 I0.3 I0.6 I0.2 I0.5 I0.1 I0.4 I0.0

مصعد مكون من أربعة أدوار يوجد لكل طابق مفتاح خارجى ومفتاح داخلى لطلب الكابينة ولابد من مراعاة الاتى:

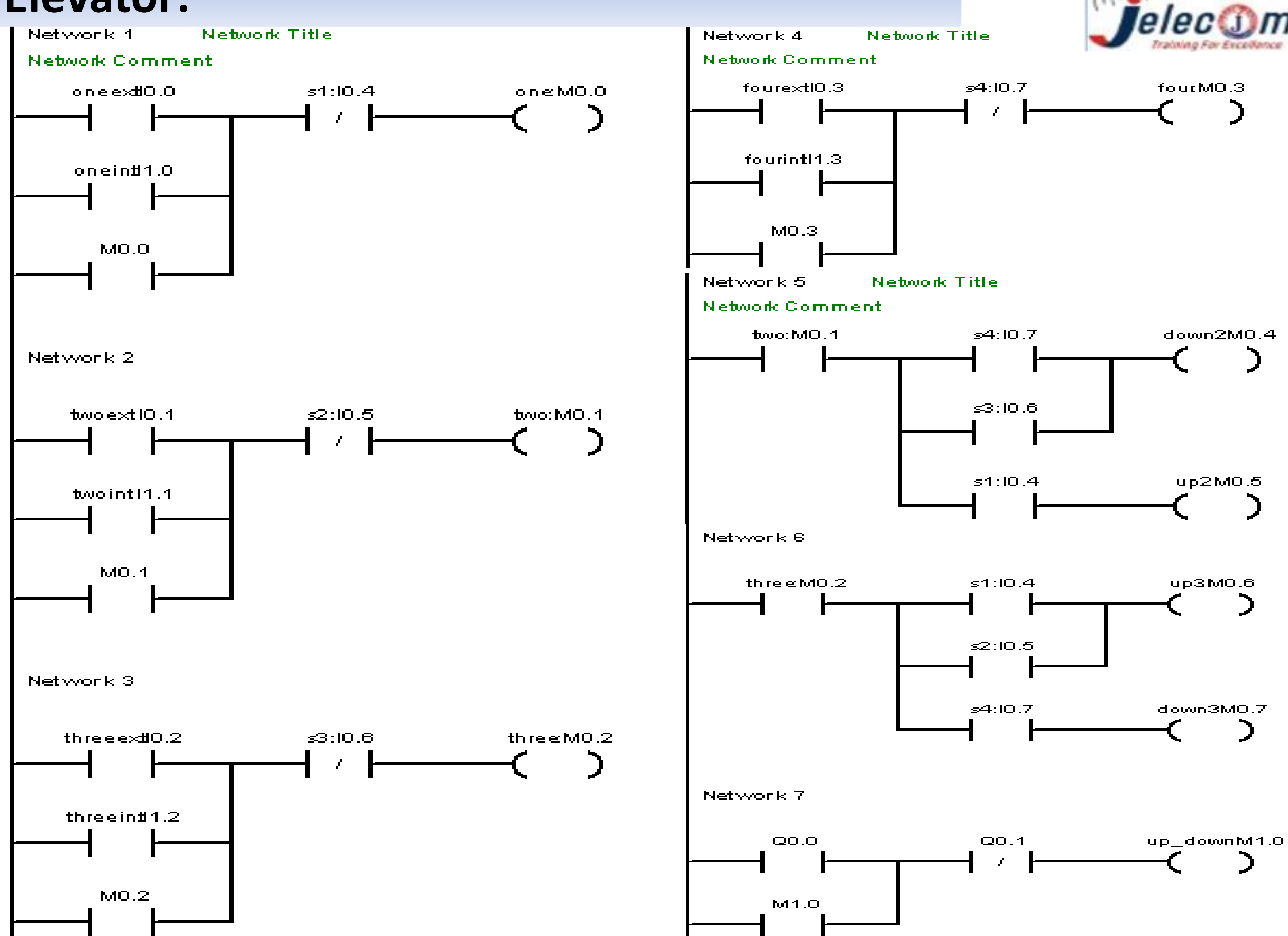
-- لا بد من اعطاء فترة كافية للمستخدم لكي يخرج من الكابينة عند التوقف.

-- يمكن ان يطلب اثنان من المستخدمين أو أكثر الكابينة فى نفس الوقت (فى هذه الحالة اذا كانت الكابينة متجهة للصعود قبل التوقف فانها تكمل صعود ثم النزول فيما بعد واذا كانت الكابينة متجهة للنزول قبل التوقف فانها تكمل نزول ثم الصعود فيما بعد).

1 2 3 4

I1.0 I1.1 I1.2 I1.3

Elevator:



Network 1 Network Title
Network Comment
oneext I0.0
s1:I0.4
one:M0.0
oneint I1.0
M0.0
Network 2
twoext I0.1
s2:I0.5
two:M0.1
twoint I1.1
M0.1
Network 3
threeext I0.2
s3:I0.6
three:M0.2
threeint I1.2
M0.2
Network 4 Network Title
Network Comment
fourext I0.3
s4:I0.7
four:M0.3
fourint I1.3
M0.3
Network 5 Network Title
Network Comment
two:M0.1
s4:I0.7
down2M0.4
s3:I0.6
s1:I0.4
up2M0.5
Network 6
three:M0.2
s1:I0.4
up3M0.6
s2:I0.5
s4:I0.7
down3M0.7
Network 7
Q0.0
Q0.1
up_downM1.0
M1.0

Elevator:



Network 8

extend1:M2.0 — s1:I0.4 — T37 / — waiting:M1.1

extend2:M2.1 — s2:I0.5 — T37

IN TON

50 PT 100 ms

extend3:M2.2 — s3:I0.6

extend4:M2.3 — s4:I0.7

Network 9

Q0.0 / — Q0.1 / — s1:I0.4 / — s4:I0.7 / — one:M0.0 — four:M0.3

two:M0.1 — four:M0.3

one:M0.0 — three:M0.2

9.A

up_down:M1.0 — cancel_down:M1.3

up_down:M1.0 / — cancel_up:M1.2

Elevator:



Network 10

fourM0.3, waitingM1.1, cancel_upM1.2, Q0.1, Q0.0

up2M0.5

up3M0.6

Network 11

oneM0.0, waitingM1.1, cancel_downM1.3, Q0.0, Q0.1

down2M0.4

down3M0.7

Elevator:



Network 12 Network Title

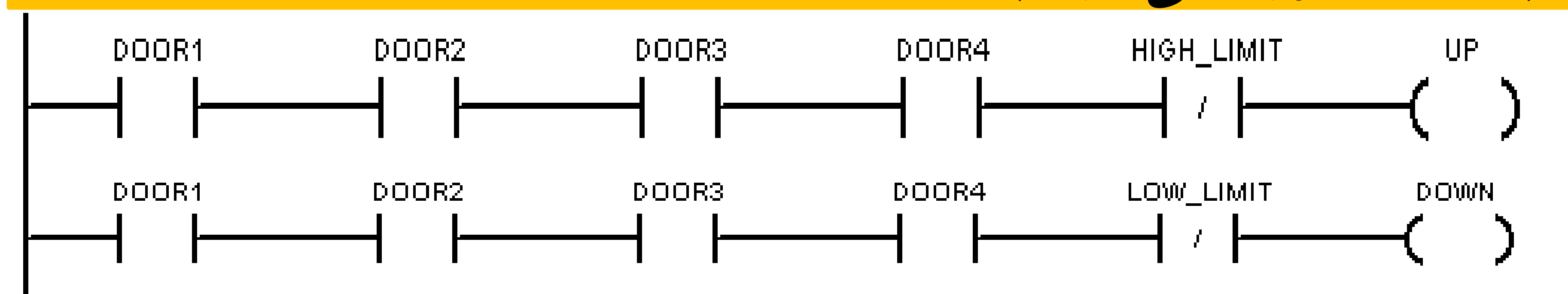
Network Comment

T37
M0.0
extend1:M2.0
extend1:M2.0
M0.1
extend2:M2.1
extend2:M2.1
M0.2
extend3:M2.2
extend3:M2.2
M0.3
extend4:M2.3
extend4:M2.3

ELEVATOR:
NOTE:



لاحظ انه توجد بعض الملحقات لهذا المشروع مثل وجود لمبتين فى كل طابق لتوضيح اتجاه المصعد (صاعد ام هابط) ولا بد من أخذ ليميت سويتش كل باب فى كل طابق فى الاعتبار فلا بد أن تكون كل الأبواب مغلقة لكى تتحرك الكابينة ولا بد من وضع مفتاحين ليميت سويتش أحدهما فى أعلى الطوابق والأخر أسفل الطوابق للطوارئ لكى يفصلا الكابينة اذا تجاوزت أعلى الطوابق أو تجاوزت أسفل الطوابق ولكن كل هذه الأشياء يمكن اضافتها بسهولة على البرنامج فالغرض من هذا المشروع هو تطبيق الأوامر الجديدة وهو ما يمكن أن يشكل صعوبة فى البداية.



OFF –Delay TIMER (TOF):



PROGRAM COMMENTS

Network 1 Network Title

Network Comment

I0.0 T37

IN TOF

50 PT 100 ms

Network 2

T37 Q0.0

I0.0

Q0.0

5 SEC

تتبدل الريشة عند : وجود إشارة أو عد التيمر > العد المطلوب

Applications:
- MOTOR DIRECTION REVERSE WITH DELAY:



اذا كانت قدرة المحرك كبيرة جدا جدا فان عكس الحركة الغير مباشر بدون فرملة قد يمثل خطورة على المحرك حيث يسبب لى العضو الدوار ولذلك ان لم يستدعى التطبيق وجود فرملة(مثلا كان الموتورخلاط لخلط نسب مختلفة) فيمكن ان تجبر المستخدم على انتظار بعض الوقت منذ فصل الجهة الأمامية إلى أن يشغل الجهة العكسية عن طريق البرنامج ولكن لا تجبر المستخدم على ان ينتظر لتشغيل نفس الجهة.

لمعرفة الزمن المناسب استخدم ساعة إيقاف وافصل الموتور عند أقصى سرعة له.

Applications:
- MOTOR DIRECTION REVERSE WITH DELAY:



Suppose motor takes 5 sec to stop

PROGRAM COMMENTS

Network 1

ONF, OFF, Q0.1 (/), T38 (/) → Q0.0; Q0.0 (parallel to ONF); T37: IN, TOF, 50 - PT, 100 ms

Symbol	Address	Comment
OFF	I0.2	
ONF	I0.0	

Network 2

ONR, OFF, Q0.0 (/), T37 (/) → Q0.1; Q0.1 (parallel to ONR); T38: IN, TOF, 50 - PT, 100 ms

Symbol	Address	Comment
OFF	I0.2	
ONR	I0.1	

Retentive On –Delay TIMER (TONR):



PROGRAM COMMENTS

Network 1 Network Title

Network Comment

I0.0 T5

IN TONR

50 PT 100 ms

Network 2

T5 Q0.0

Network 3

I0.1 T5 R 1

Timing Diagram

I0.0

Q0.0

3 SEC

2 SEC

I0.1

- تتبدل الريشة عند : عد التيمر ≥ العد المطلوب
- هذا التيمر لا تعود ريشته للوضع الأصلى إلا بأمر RESET
- هذا التيمر تراكمى أى يمكن أن يعد بشكل متواصل / متقطع

TIMERS:



إذا وجدت إشارة للعد على التيمر أو الكونتر
وفى نفس الوقت وجدت إشارة لأمر ال COUNTER
للتيمر أو الكونتر فإن البرنامج يعطى الأولوية RESET
لأمر ال RESET

الدليل:

SIEMENS S7-300 PROGRAM (SIMATIC MANAGER)

```
Network 1 : Title:

Comment:

                 T37
   I0.0         S_ODT                        Q0.0
---| |--------|S       Q|--------------------( )---|
   S5T#5S ----|TV     BI|- ...
   I0.1   ----|R     BCD|- ...
```

أمر إشارة العد و RESETفى نفس ال BLOCK أى نفس النتورك وبالتالى ترتيب النتورك لا وجود له

PLC SIEMENS S7-200 COUNTERS:



1- UP COUNTER (CTU).

2- DOWN COUNTER (CTD).

3- UP/DOWN COUNTER (CTUD).

C - Area

PV	ACC	BIT	Counter
PV (15-BIT)	ACC (15 -BIT)	BIT	C0
PV (15-BIT)	ACC (15 -BIT)	BIT	C1
⋮	⋮	⋮	⋮
PV (15-BIT)	ACC (15 -BIT)	BIT	C255

UP COUNTER (CTU):



PROGRAM COMMENTS

Network 1

I0.0 — CU (C0, CTU)

I0.1 — R

4 — PV

Network 2

C0 — Q0.0 ( )

I0.0

I0.1

ACC

0 1 2 3 4 5 0

Q0.0

تتبدل الريشة عند : عد العداد ≥ العد المطلوب

UP COUNTER (CTU):



ماذا يحدث عند وصول العداد لأقصى قيمة له : 32767 – هل يصفر أم تثبت قيمته أم ماذا ؟ قم بتجربة هذه الدائرة:

PROGRAM COMMENTS

Network 1

I0.0 — T32 (/) — T32 TON (IN, PT = 1, 1 ms)

Network 2

T32 — C0 CTU (CU)

I0.1 — R

4 — PV

SIEMENS

SIMATIC S7-200

SF RUN STOP

CPU 224

0 1 2 3 4 5 6 7 0 1

magdy

0 1 2 3 4 5 6 7 0 1 2 3 4 5

0 1 2 3 4 5 6 7 0 1 2 3 4 5

KOP

ORGANIZATION_BLOCK MAIN:OB1

Network 1

1=I0.0 1=T32 1=T32 IN TON 1 PT 1 ms

Network 2

1=T32 32767=C0 CU CTU

0=I0.1 R

4 PV

Applications:
- Two related belts:



Q0.1

I0.3

I0.2

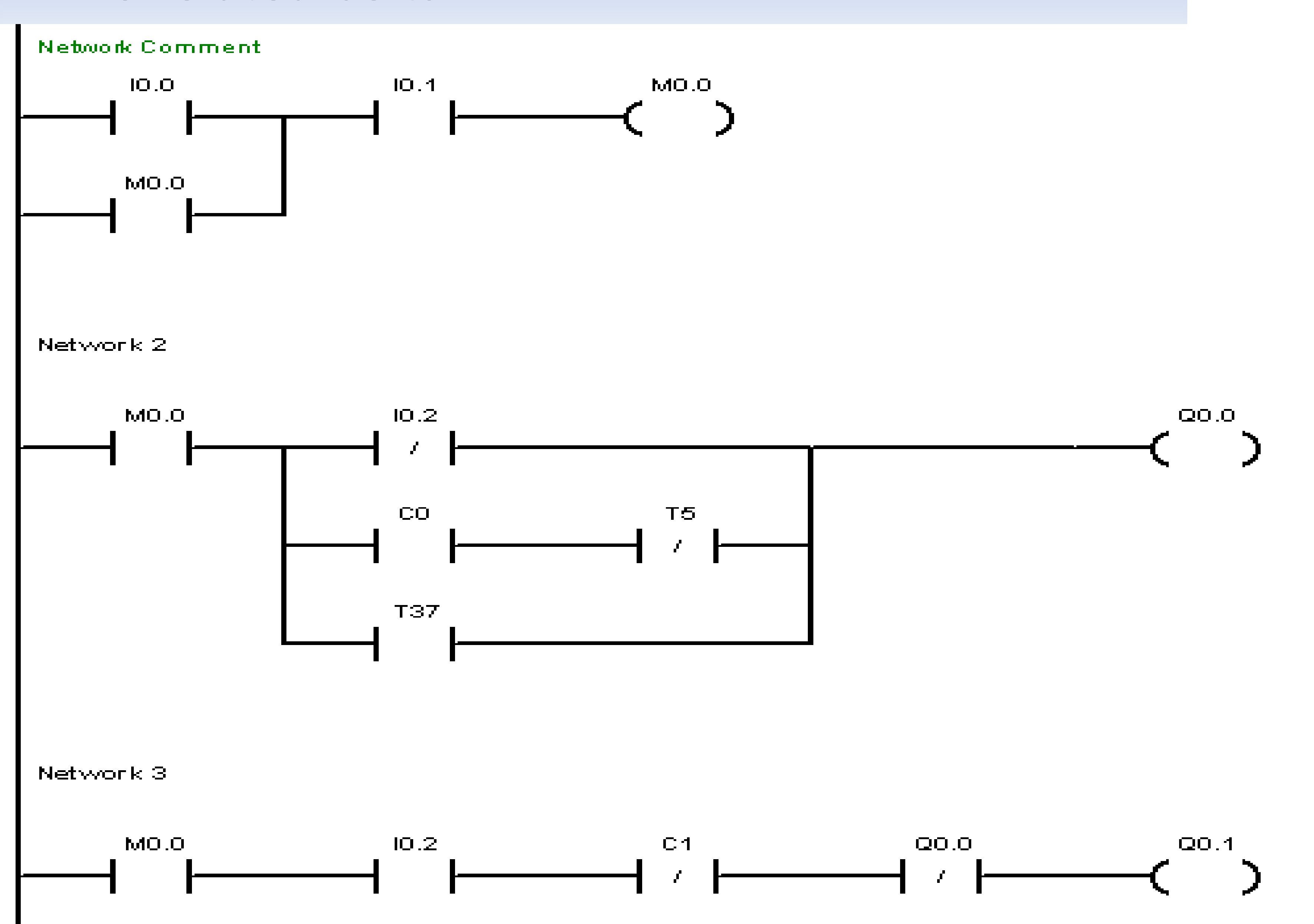
Q0.0

ON (I0.0)

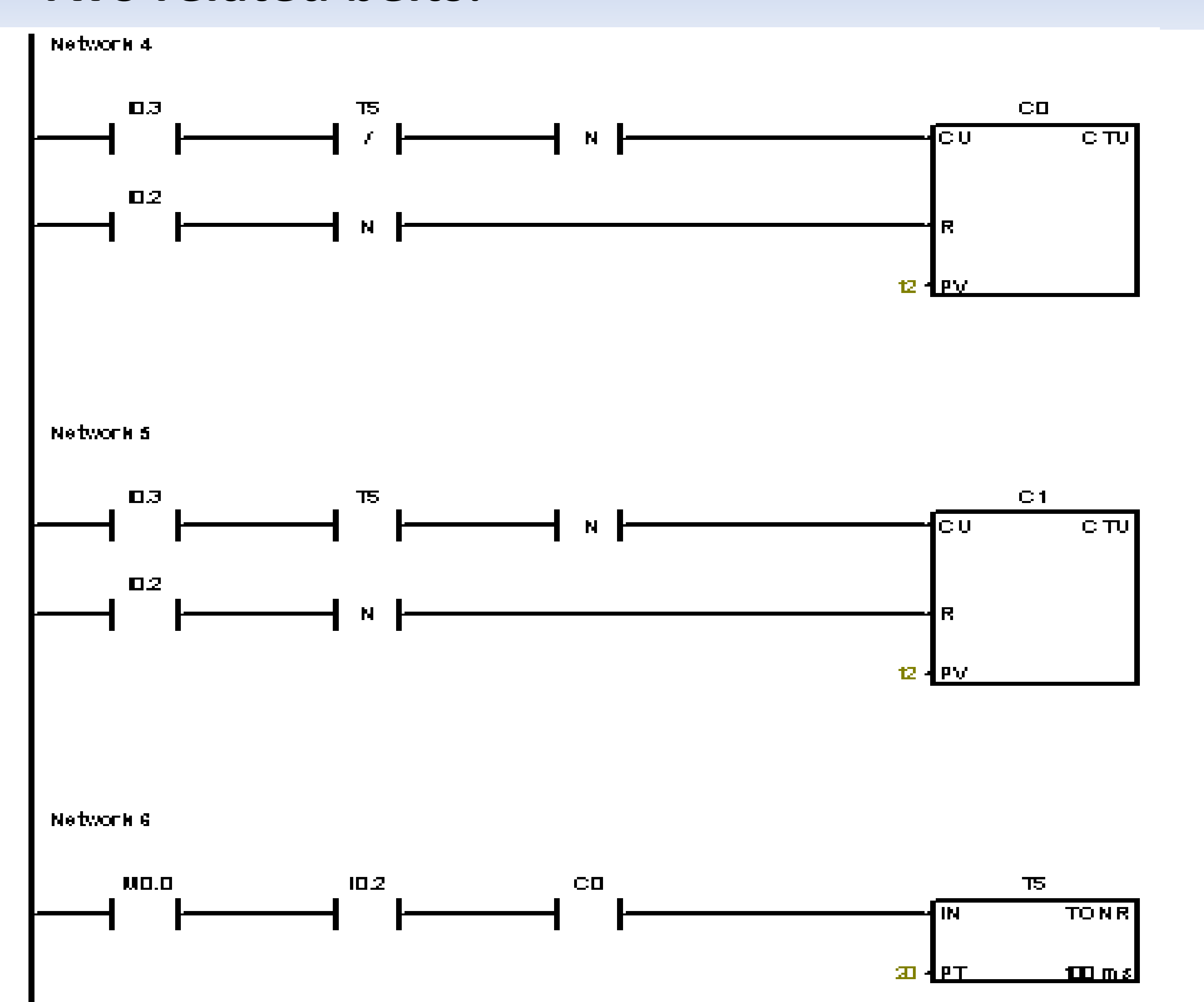
OFF(I0.1)

مطلوب تعبئة 24 قطعة صابون داخل الكرتونة فعندما يشعر الحساس بالكرتونة يتوقف السير Q0.0 ويعمل السير Q0.1 إلى أن تمتلئ الكرتونة بنصف العبوة المطلوبة ثم يتحرك السير Q0.0 مرة أخرى بإزاحة صغيرة (فترة زمنية) ثم يتوقف ليكمل باقى العبوة ثم يتحرك مع العلم أنه لا يجوز أن يتحرك السير بالأعلى الا إذا كان السير السفلى متوقف.

Applications:
- Two related belts:



Applications:
- Two related belts:





Applications:
- Two related belts:

Network 7

C1

T37

IN TON

30 PT 100 ms

Network 8

I0.2

N

T5

R

1

BOILERS LIQUID PREPARING: إعداد سائل الغلايات



START (I0.0)
STOP (I0.1)
valve1 (I0.2)
valve2 (I0.3)
valve3 (I0.4)
valve4 (I0.5)
rework (I0.6)

additions
water
additions
water

Q0.3
Q0.2
Q0.1
Q0.0

I1.2
I1.0
Q0.5
Q0.4
I1.1
I0.7
Q0.7
Q0.6

Q1.1
Q1.6
Q1.0
Q1.7

Temperature sensor(I1.3)
LOW LEVEL (I1.5)
FLOW METER (I1.4)

ALARM (Q2.0)

valve1 (Q1.2)
valve2 (Q1.3)
valve3 (Q1.4)
Valve4 (Q1.5)

BOILERS LIQUID PREPARING: إعداد سائل الغلايات



في هذه الدائرة نقوم بتجهيز السائل المستخدم فى الغلايات عن طريق الخطوات الاتية:

-- عمل صمام الماء في كل خزان علوي إلي أن يمتلئ كل خزان علوي عن طريق حساسات المستوى العلوية I1.0 و I1.2 .

-- عمل صمام الإضافات في كل خزان علوي لمدة دقيقة واحدة ثم يغلقا بعد انتهاء المدة.

-- عمل الخلاطان Q0.4 و Q0.5 ومعهما صماما السحب Q0.6 و Q0.7 ومعهم موتورالضخ Q1.0 وكذلك الصمامان Q1.6 و Q1.7 كل هذا لدمج المكونات دمجا جيدا لمدة 10 دقائق مثلا (نسبة تقديرية).

-- بعد العشرة دقائق يعمل صمام السحب الرئيسى Q1.1 أيضا معهم وينتظر فراغ الخزانان العلويان ويتم معرفة ذلك عن طريق الحساسان I0.7 و I1.1 وبعد ذلك بدقيقة مثلا يتم فصل صمام السحب والصمامات العلوية وموتور الضخ.

-- مطلوب سحب الكميات من الخزان السفلي عن طريق الأربعة صمامات الموجودة بالأسفل وكل صمام له مفتاح للتشغيل ..الصمام الواحد مطلوب منه ضخ 300 لتر يتم حسابهم عن طريق ال FLOWMETER I1.4 ولأنه حساس واحد فلا بد من تشغيل صمام واحد في اللحظة الواحدة (صمام تلو صمام وليس كل الصمامات السفلية معا)فمثلا المستخدم يجعل صمام 1 يعمل إلي أن ينهي كميته ثم يجعل صمام 2 يعمل ثم صمام 3 ثم صمام 4.

-- مفتاح REWORK يسمح باستخدامه في نهاية الدورة الواحدة لإعادة الدورة من جديد.

-- مطلوب أن تكون حرارة السائل في الخزان السفلي لا تتجاوز 15°C وإلا فان سارينة Q2.0 تعمل ويتوقف السحب الأخير.

BOILERS LIQUID PREPARING: إعداد سائل الغلايات



Network 1 Network Title

I0.0 I0.1 M0.0

M0.0

Network 2

M0.0 I1.0 / T5 / Q0.0

I1.2 / T6 / Q0.2

Network 3

M0.0 I1.0 T5 / Q0.1

T5
IN TONR
600 PT 100 ms

Network 4

M0.0 I1.2 T6 / Q0.3

T6
IN TONR
600 PT 100 ms

Network 5

M0.0 T5 T6 T8 / Q0.4

Q0.5

Q0.6

Q0.7

Q1.6

Q1.7

Q1.0

T7
IN TONR
6000 PT 100 ms

BOILERS LIQUID PREPARING: إعداد سائل الغلايات



Network 6

M0.0 T7 T8 / Q1.1 ( )

I0.7 / I1.1 / T8 IN TONR

600 PT 100 ms

Network 7

I0.2 M0.3 / M0.4 / M0.5 / C0 / I1.5 7.A

M0.2

7.A M0.2 ( )

Network 8

I0.3 M0.2 / M0.4 / M0.5 / C0 / I1.5 8.A

M0.3

8.A M0.3 ( )

BOILERS LIQUID PREPARING: إعداد سائل الغلايات



Network 9

Contacts	Output
(I0.4 OR M0.4) AND NOT M0.2 AND NOT M0.3 AND NOT M0.5 AND NOT C0 AND I1.5	9.A
9.A	(M0.4)

Network 10

Contacts	Output
(I0.5 OR M0.5) AND NOT M0.2 AND NOT M0.3 AND NOT M0.4 AND NOT C0 AND I1.5	10.A
10.A	(M0.5)

Network 11

Contacts	Output
M0.0 AND T8 AND NOT I1.3 AND M0.2	(Q1.2)
M0.0 AND T8 AND NOT I1.3 AND M0.3	(Q1.3)
M0.0 AND T8 AND NOT I1.3 AND M0.4	(Q1.4)
M0.0 AND T8 AND NOT I1.3 AND M0.5	(Q1.5)



Network 12

M0.0 I1.3 Q2.0

Network 13

I1.4 C0

CU CTU

M0.2 M0.3 M0.4 M0.5

R

300 PV

Network 14

I0.6 T8 I1.5 T5

R

DOWN COUNTER (CTD):



Network 1

I0.0

I0.1

C1

CD

CTD

LD

3 PV

Network 2

C1

Q0.0

( )

Timing Diagram

I0.0 Down

I0.1 Load

C1 (current)

3 2 1 0 0 3 2

C1 (bit) Q0.0

تتبدل الريشة عند : عد العداد = صفر

UP DOWN COUNTER (CTUD):



Network 1

I0.0 — CU CTUD (C48)

I0.1 — CD

I0.2 — R

+4 — PV

Network 2

C48 — Q0.0 ( )

Timing Diagram

I0.0 (up)

I0.1 (down)

I0.2 (reset)

C48 (current): 0, 1, 2, 3, 4, 5, 4, 3, 4, 5, 0

C48 (bit)
Q0.0

تتبدل الريشة عند : عد العداد ≥ العد المطلوب

Applications : Garage system:



I0.3

MOTOR UP Q0.0

MOTOR DOWN Q0.1

I0.2

IN

OUT

I0.1

I0.0

OPEN (I0.4)

CLOSE (I0.5)

STOP (I0.6)

IN (Q0.2)

OUT (Q0.3)

Garage capacity : 20 cars

Applications : Garage system:



فى هذا الجراج مكان الدخول والخروج واحد حيث ان الحساس I0.0عندما يشعر بالسيارة يرفع الذراع Q0.0 الى ان تتحرك السيارة وتدخل بالكامل فينزل الذراع Q0.1 واذا اقبلت اى سيارة فى الداخل للخروج وشعر بها الحساس I0.1 فانه يرفع الذراع لكى تمر السيارة وينزل الذراع بعد خروج السيارة بالكامل. ومنعا لتواجد سيارتين تدخلا وتخرجا فى نفس الوقت توجد لمبتا اشارة احداهما تنبه من فى الداخل بقدوم سيارة والاخرى تنبه من فى الخارج بخروج سيارة. سعة هذا الجراج 20 سيارة فهو غير مسموح بدخول السيارة رقم 21. توجد مفاتيح MANUAL ملحقة بالنظام من شأنها أيضا رفع أو إسقاط الذراع أو إيقافه فى اى لحظة. لابد أن تراعى أنه فى حالة قدوم سيارة تلو سيارة مباشرة للدخول او الخروج لابد الا يغلق الذراع بالكامل بل يسمح بمرور السيارتين المتتاليتين.

Applications : Garage system:



Network 1

I0.0 M0.1 / IN:M0.0
M0.0 INLED:Q0.2

Symbol	Address	Comment
IN	M0.0	
INLED	Q0.2	

Network 2

I0.1 M0.0 / OUT:M0.1
M0.1 OUTLED:Q0.3

Symbol	Address	Comment
OUT	M0.1	
OUTLED	Q0.3	

Network 3

I0.1 M0.0 N M0.0 R 2
I0.0 M0.1 N

Network 4

I0.0 M0.0 P C0 / STOP_DOOR:I0.6 I0.3 / Q0.1 / OPEN:Q0.0
I0.1 M0.1 P
OPEN_PB:I0.4
Q0.0

Network 5

I0.0 M0.1 N I0.6 M0.2 / I0.2 / Q0.0 / CLOSE:Q0.1
I0.1 M0.0 N
CLOSE_PB:I0.5
Q0.1

Applications : Garage system:



Network 6

I0.0 M0.0 STOP_CLO~:M0.2

I0.1 M0.1

Network 7

I0.1 M0.0 N

C0

CU CTUD

I0.0 M0.1 N

CD

M20.0

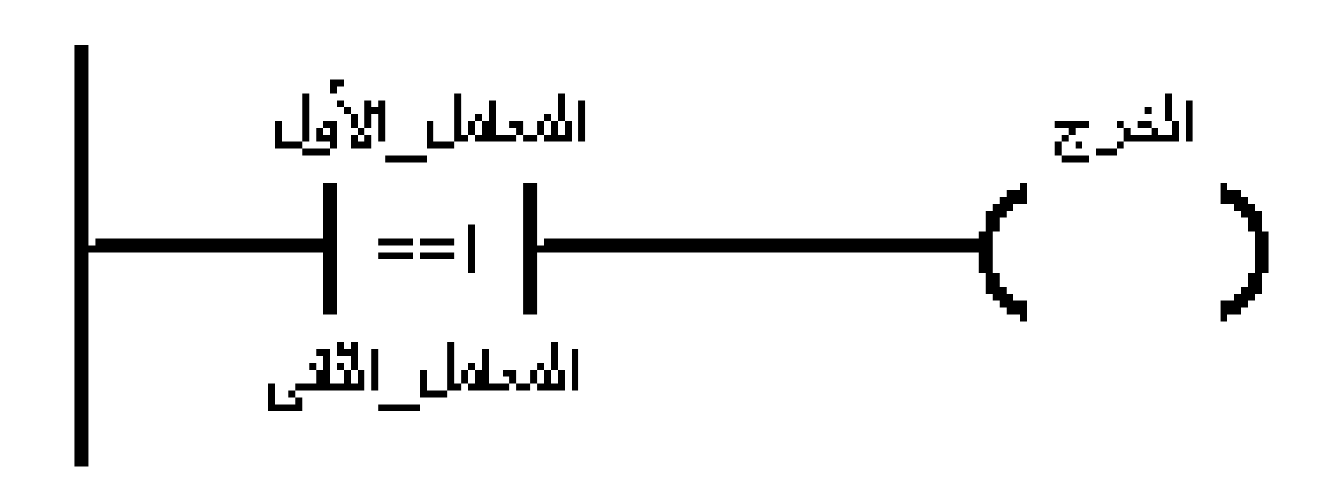
R

20 PV

M0.0	Indication for IN
M0.1	Indication for OUT
M0.2	Stops closing door if a car exists and wants to enter or exit.
Q0.2	Lamp tells the inside person that there is a car wants to enter.
Q0.3	Lamp tells the outside person that there is a car wants to exit.
I0.4	Control door manually (Manual control has the priority for execution).
I0.5	
I0.6	

Compare :





المعامل الأول والمعامل الثانى لا بد أن يكونا **integer** وإذا كان الشرط متحقق يعمل الخرج أما إذا كان غير متحقق فإن الخرج لن يعمل وهذا الشرط يتوقف على علامة المقارنة:

≤ ≥ <> == > <

???? ???? ???? ???? ???? ????

==| <>| >| <| >=| <=|

???? ???? ???? ???? ???? ????

Compare :



Network 1

C0 >=I 3 — Q0.0 ( )

Network 2

C0 >=I 4 — C0 <=I 10 — Q0.1 ( )

Network 3

T37 <I 50 — Q0.2 ( )

Network 4

C0 <I T37 — Q0.3 ( )

IF C0>=3
THEN Q0.0=1

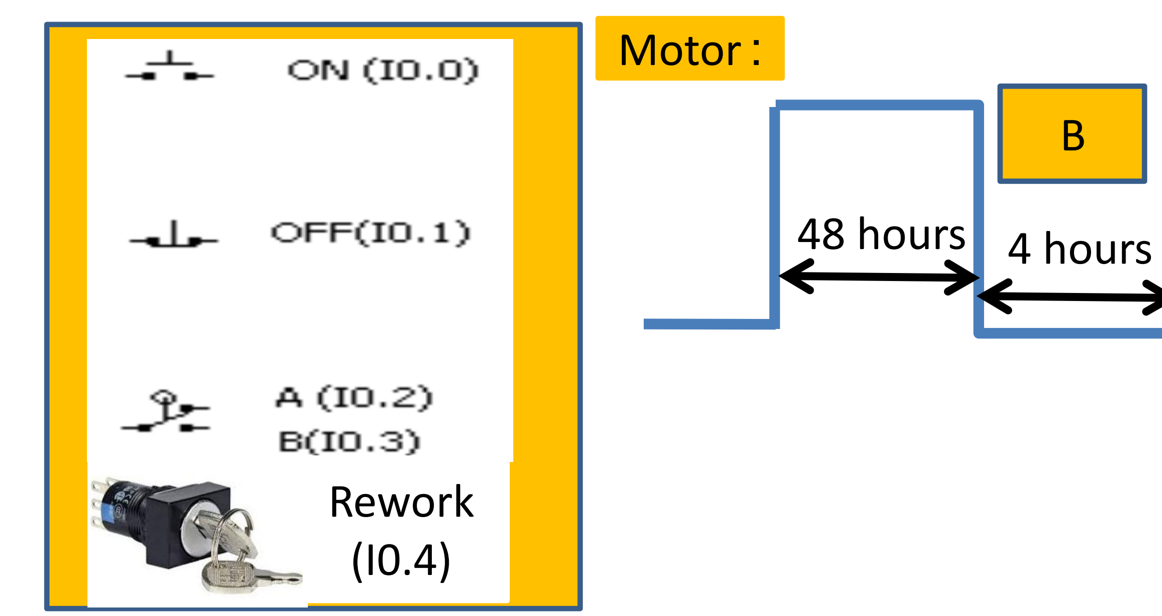
IF 4 ≤ C0 ≤ 10
THEN Q0.1=1

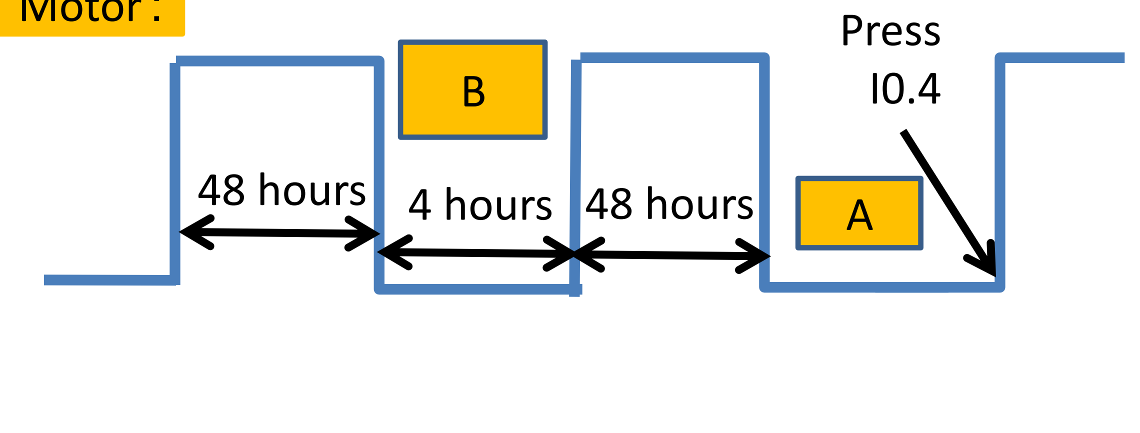
IF T37< 50
THEN Q0.2=1

IF C0 < T37
THEN Q0.3=1

ADVANCED MOTOR WORK:







MAINTENANCE (A)	REST(B)
press I0.4 to make motor work again	motor works automatically after 4 hours from stopping

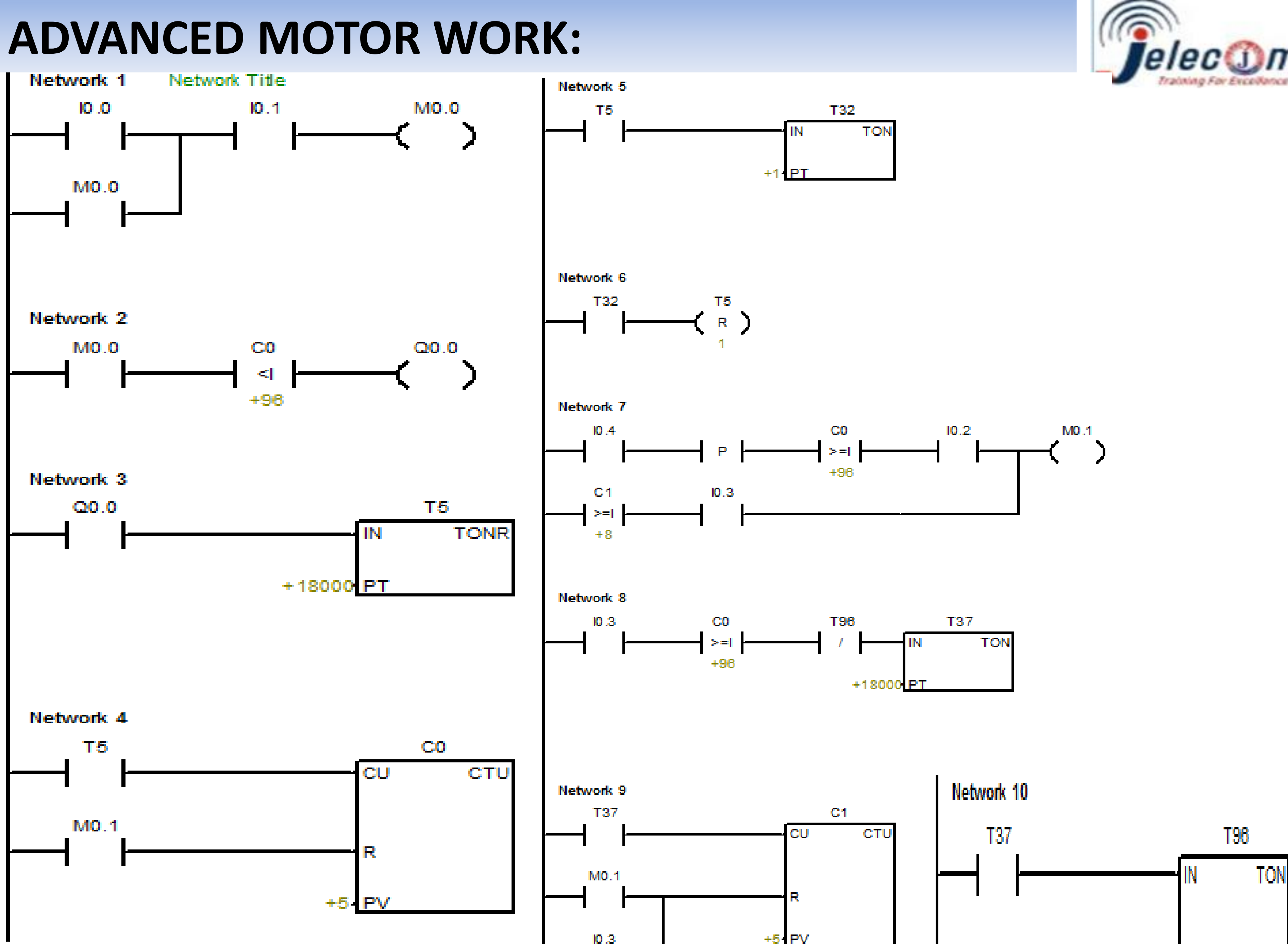
فى النظام: يفصل الموتور بشكل دورى بعد عدد معين من الساعات لعمل الصيانة أو للراحة لفترة معينة وفقا لاختيار النظام عن طريق مفتاح selector (I0.2 أو I0.3) فعلى سبيل المثال اخترنا للتجربة أن يعمل الموتور 48 ساعة سواء متصلة أو متقطعة وفترة الراحة (إن اخترنا i0.3) أربع ساعات



لا يعقل هذا ... كيف نستطيع أن نعد 24 ساعة وتيمرات S7-200 لا تعد أكثر من ساعة إلا قليل وإذا أردنا استخدام أكثر من تايمر فكم تايمر سنستخدمه إذا كان التايمر سيخصص لعد نصف ساعة وال 24 ساعة فيها 48 نصف ساعة ... إذا نستخدم 48 تايمر ... معنى هذا أننا سنتفرغ لهذه العملية فقط (لا يعقل استخدام 48 تايمر لموتور واحد فقط) وإذا أردنا أن نعد 48 ساعة استخدم 96 تايمر .... لا يعقل هذا------الحل:

استخدم تايمر واحد لعد نصف ساعة واجعل هذا التايمر يكرر هذا العد عن طريق قطع الاشارة عنه(لو كان on-delay) أو عمل reset (لو كان retentive on-delay) واستخدم عداد يعد هذا التكرار .... فإذا أردنا عد 24 ساعة استخدم تايمر ليعد نصف ساعة (1800 ثانية) واستخدم عداد يعد 48مرة يكرر فيها هذا التايمر عده...... وإذا أردنا عد 48 ساعة استخدم تايمر ليعد نصف ساعة (1800 ثانية) واستخدم عداد يعد 96مرة يكرر فيها هذا التايمر عده ..... وهكذا

ADVANCED MOTOR WORK:



BELT WITH 3 MODES:

A	I0.2
B	I0.3
C	I0.4

START	I0.0
STOP	I0.1

BELT WITH 3 MODES:



3 MODES:

A: ALL IS FILLED

B: EVEN IS FILLED

C: ODD IS FILLED

PROX SENSOR
I:1/03

MOTOR
O:2/00

BELT WITH 3 MODES:



Network 1 Network Title

Network Comment

I0.0, M0.0 (parallel) — I0.1 — (M0.0)

Network 2

M0.0 — Q0.1 / — (Q0.0)

Network 3

M0.0 — I0.5 — M0.1 / — [I0.3 — C0] or [I0.4 — C0 /] or [I0.2] — (Q0.1)

Network 4

I0.6, M0.1 (parallel) — I0.5 — (M0.1)

BELT WITH 3 MODES:



PROGRAM COMMENTS

Network 1

```
      I0.5                 N              C0
 |----| |-----------------| N |-------+----------+
 |                                    |CU    CTU |
 |    C0                              |          |
 |----|==I|---+-----------------------|R         |
 |     +2     |                       |          |
 |    I0.2    |                   +1 -|PV        |
 |----| |-----+                       +----------+
```

Network 2

```
      I0.6                 Q0.4
 |----| |-----------------(    )
```

Network 3

```
      Q0.1                 Q0.3
 |----| |-----------------(    )
```

Network 4

```
      Q0.0                 Q0.2
 |----| |-----+-----------(    )
 |    Q0.1    |
 |----| |-----+
```

PLC SIEMENS S7-1200 :



PLC_2

Device ov

Catalog

<Search>

103	102	101	1	2	3

Rack_0

مكان تعريف المداخل والمخارج

مكان تعريف كروت الاتصال او المداخل والمخارج البسيطة المضافة

مكان تعريف كروت الاتصال الملحقة

- CPU
- Signal boards
- Communications boards
- Battery boards
- DI
- DQ
- DI/DQ
- AI
- AQ
- AI/AQ
- Communications modules
- Technology modules

100%

PLC_2 [CPU 1212C DC/D... | Properties | Info | Diagnostics

General | IO tags | System constants | Texts

- General
- PROFINET interface [X1]
- DI 8/DQ 6
  - General
  - Digital inputs
  - Digital outputs
  - I/O addresses
  - Hardware identifier
- AI 2

I/O addresses

Input addresses

Start address: 0

End address: 0

Organization block: --- (Automatic update)

Process image: Automatic update

PLC SIEMENS S7-1200 catalogue:



Adding modules to the configuration

Use the hardware catalog to add modules to the CPU:

- Signal module (SM) provides additional digital or analog I/O points. These modules are connected to the right side of the CPU.
- Signal board (SB) provides just a few additional I/O points for the CPU. The SB is installed on the front of the CPU.
- Battery Board 1297 (BB) provides long-term backup of the realtime clock. The BB is installed on the front of the CPU.
- Communication board (CB) provides an additional communication port (such as RS485). The CB is installed on the front of the CPU.
- Communication module (CM) and communication processor (CP) provide an additional communication port, such as for PROFIBUS or GPRS. These modules are connected to the left side of the CPU.

To insert a module into the device configuration, select the module in the hardware catalog and either double-click or drag the module to the highlighted slot. You must add the modules to the device configuration and download the hardware configuration to the CPU for the modules to be functional.

Module	Select the module	Insert the module	Result
SM			
SB, BB or CB			
CM or CP			

PLC SIEMENS S7-1200 catalogue:



Expansion capability of the CPU

The S7-1200 family provides a variety of modules and plug-in boards for expanding the capabilities of the CPU with additional I/O or other communication protocols. For detailed information about a specific module, see the technical specifications (Page 1111).

Signal board (SB)

Signal module(SM)

Communication module(CM)

Signal module(SM)

PLC SIEMENS S7-1200 (TIA v13 software):



Siemens

Totally Integrated Automation
PORTAL

Start

Devices & networks

PLC programming

Motion & technology

Visualization

Online & Diagnostics

Open existing project

Create new project

Migrate project

Close project

Welcome Tour

First steps

Installed software

Help

User interface language

Create new project

Project name: magdysudan

Path: C:\Users\ami\Documents\Automation

Author: ami

Comment:

Create

Project view

PLC SIEMENS S7-1200 (TIA software):



Siemens - C:\Users\ami\Documents\Automation\magdysudan\magdysudan

Totally Integrated Automation
PORTAL

Start

Devices & networks

PLC programming

Motion & technology

Visualization

Online & Diagnostics

Show all devices

Add new device

هذا الجزء لاختيار نوع الوحدة

Configure networks

هذا الجزء لفتح البرنامج

Help

Add new device

Device name:

Controllers

HMI

PC systems

- Controllers
  - SIMATIC S7-1200
  - SIMATIC S7-1500
  - SIMATIC S7-300
  - SIMATIC S7-400
  - SIMATIC ET 200 CPU
  - Device Proxy

Device

Article

Versio

Descri

PLC SIEMENS S7-1200 (TIA software):



Show all devices

Add new device

Configure networks

Help

Add new device

- CPU
  - CPU 1211C AC/DC/Rly
    - 6ES7 211-1BD30-0XB0
    - 6ES7 211-1BE31-0XB0
    - 6ES7 211-1BE40-0XB0
  - CPU 1211C DC/DC/DC
  - CPU 1211C DC/DC/Rly
  - CPU 1212C AC/DC/Rly
  - CPU 1212C DC/DC/DC
  - CPU 1212C DC/DC/Rly
  - CPU 1214C AC/DC/Rly
  - CPU 1214C DC/DC/DC
  - CPU 1214C DC/DC/Rly
  - CPU 1215C AC/DC/Rly
  - CPU 1215C DC/DC/DC
  - CPU 1215C DC/DC/Rly
  - CPU 1217C DC/DC/DC
  - CPU 1214FC DC/DC/DC
  - CPU 1214FC DC/DC/Rly
  - CPU 1215FC DC/DC/DC
  - CPU 1215FC DC/DC/Rly
  - Unspecified CPU 1200
- SIMATIC S7-1500
- SIMATIC S7-300

CPU 1211C AC/DC/Rly

Article no.: 6ES7 211-1BE40-0XB0

Version: V4.1

Description:

Work memory 50 KB; 120/240VAC power s with DI6 x 24VDC SINK/SOURCE, DQ4 x rela AI2 on board; 3 high-speed counters (expandable with digital signal board) and pulse outputs on board; signal board expa on-board I/O; up to 3 communication mod for serial communication; 0.04 ms/1000 instructions; PROFINET interface for programming, HMI and PLC to PLC communication

Add

PLC SIEMENS S7-1200 (TIA software):



Siemens - C:\Users\ami\Documents\Automation\magdysudan\magdysudan

Project Edit View Insert Online Options Tools Window Help

Save project   Go online   Go offline

Totally Integrated Automation
PORTAL

Project tree

Devices

- magdysudan
  - PLC_1 [CPU 1211C AC/...
    - Program blocks
    - Technology objects
    - External source files
    - PLC tags
    - PLC data types
    - Watch and force tables
    - Online backups
    - Traces
    - Device proxy data
    - Local modules
  - Common data
  - Documentation settings
  - Languages & resources
- Online access
- Card Reader/USB memory

Details view

magdysudan ▸ PLC_1 [CPU 1211C AC/DC/Rly]

Details | List | Thumbnails

Device configurati... | Online & diagnostics | Program blocks | Technology objects | External source files | PLC tags | PLC data types

magdysudan ▸ PLC_1 [CPU 1211C AC/DC/Rly]

Topology view | Network view | Device view

PLC_1

Double click

100%

PLC_1 [CPU 1211C AC/D... | Properties | Info | Diagnostics

General | IO tags | System constants | Texts

- General
- PROFINET interface [X1]
  - General
  - Ethernet addresses
  - Time synchronization
  - Operating mode
  - Advanced options
  - Web server access
  - Hardware identifier
- DI 6/DQ 4
- AI 2

Add new subnet

Set IP address in the project

IP address: 192 . 168 . 0 . 1

Subnet mask: 255 . 255 . 255 . 0

Use router

Router address: 0 . 0 . 0 . 0

IP address is set directly at the device

Hardware catalog

Options

Catalog

<Search>

Filter

- CPU
- Signal boards
  - DI
    - DI 4x24VDC
      - 6ES7 221-3BD3...
    - DI 4x5VDC
  - DQ
  - DI/DQ
  - AI
  - AQ
- Communications boards
- Battery boards
- DI
- DQ
- DI/DQ
- AI
- AQ
- AI/AQ
- Communications mod...
- Technology modules

Information

Hardware catalog | Online tools | Tasks | Libraries

Devices & networks

Portal view | Overview | PLC_1

Project magdysudan created.

PLC SIEMENS S7-1200 (TIA software):



Siemens - C:\Users\ami\Documents\Automation\magdysudan\magdysudan

Project Edit View Insert Online Options Tools Window Help

Save project Go online Go offline

Totally Integrated Automation PORTAL

Project tree

Devices

- magdysudan
  - PLC_1 [CPU 1211C AC/...
    - Program blocks
    - Technology objects
    - External source files
    - PLC tags
    - PLC data types
    - Watch and force tables
    - Online backups
    - Traces
    - Device proxy data
    - Local modules
  - Common data
  - Documentation settings
  - Languages & resources
- Online access
- Card Reader/USB memory

Details view

magdysudan ▸ PLC_1 [CPU 1211C AC/DC/Rly]

Topology view | Network view | Device view

PLC_1

100%

PLC_1 [CPU 1211C AC/D... | Properties | Info | Diagnostics

General | IO tags | System constants | Texts

- General
- PROFINET interface [X1]
- DI 6/DQ 4
  - General
  - Digital inputs
    - Channel0
    - Channel1
    - Channel2
    - Channel3
    - Channel4
    - Channel5
  - Digital outputs
    - Channel0
    - Channel1
    - Channel2
    - Channel3
  - I/O addresses
  - Hardware identifier

6 digital inputs

4 digital outputs

Digital inputs

Channel0

Channel address: I0.0

Input filters: 6.4 millisec

Enable rising edge detection:

Event name:

Hardware interrupt: ---

Priority 18

Hardware catalog

Options

Catalog

<Search>

Filter

- CPU
- Signal boards
  - DI
    - DI 4x24VDC
      - 6ES7 221-3BD3...
    - DI 4x5VDC
  - DQ
  - DI/DQ
  - AI
  - AQ
- Communications boards
- Battery boards
- DI
- DQ
- DI/DQ
- AI
- AQ
- AI/AQ
- ...cations mod...
- Technology modules

Hardware interrupt:

Information

Portal view | Overview | PLC_1

Project magdysudan created.

PLC SIEMENS S7-1200 (TIA software):



Siemens - C:\Users\ami\Documents\Automation\magdysudan\mag

Project Edit View Insert Online Options Tools Window Help

Save project

Project tree

Devices

- magdysudan
  - PLC_1 [CPU 1211C AC/...
    - Program blocks
    - Technology objects
    - External source files
    - PLC tags
    - PLC data types
    - Watch and force tables
    - Online backups
    - Traces
    - Device proxy data
    - Local modules
  - Common data
  - Documentation settings
  - Languages & resources
- Online access
- Card Reader/USB memory

Details view

Portal view | Overview | PLC_1

magdysudan ▸ PLC_1

Actions

Add new block

Organization blocks (OB)

Main

General

\Automation\magdysudan\magdysudan

Options Tools Window Help

Go online | Go offline

Totally Integrated Automation PORTAL

magdysudan ▸ PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks

Details | List | Thumbnails

Actions

Add new block

Organization blocks (OB)

... PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks ▸ Main [OB1]

Block interface

%I0.0 "Tag_1" | %I0.1 "Tag_3" | %Q0.0 "Tag_2"

%Q0.0 "Tag_2"

Instructions

Options

Favorites

Basic instructions

Name

- General
- Bit logic operations
- Timer operations
- Counter operations
- Comparator operati...
- Math functions
- Move operations
- Conversion operatio...
- Program control op...
- Word logic operations
- Shift and rotate

Instructions | Testing | Tasks | Libraries

TIA program download to PLC:



\automation\magdysudan\magdysudan

Options Tools Window Help

Go online Go offline

magdysudan ▸ PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks

Details List Thumbnails

Actions

Add new block

Organization blocks (OB)

... PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks ▸ Main [OB1]

Block interface

%I0.0 "Tag_1" %I0.1 "Tag_3" %Q0.0 "Tag_2"

%Q0.0 "Tag_2"

Extended download to device

Configured access nodes of "PLC_1"

Device	Device type	Slot	Type	Address	Subnet
PLC_1	CPU 1211C AC/D...	1 X1	PN/IE	192.168.0.1	

Type of the PG/PC interface: PN/IE

PG/PC interface: Intel(R) 82567LM-3 Gigabit Network Connect...

Connection to interface/subnet: Direct at slot '1 X1'

1st gateway:

Compatible devices in target subnet:

Show all compatible devices

Device	Device type	Type	Address	Target device
–	–	PN/IE	Access address	–

Flash LED

Start search

Online status information:

Display only error messages

Load Cancel

TIA program download to PLC:



Extended download to device

Configured access nodes of "PLC_1"

Device	Device type	Slot	Type	Address	Subnet
PLC_1	CPU 1211C AC/D...	1 X1	PN/IE	192.168.0.1	

Type of the PG/PC interface: PN/IE

PG/PC interface: Intel(R) 82567LM-3 Gigabit Network Connect...

Connection to interface/subnet: Direct at slot '1 X1'

Extended download to device (0132:000011)

Assign IP address

To execute this function the PG/PC requires an additional IP address in the same subnet as the PLC.

Yes | No

Flash LED

Start search

Online status information:

Retrieving device information...

Scanning and information retrieval completed. 1 problem found.

Display only error messages

Load | Cancel

Extended download to device

Configured access nodes of "PLC_1"

Device	Device type	Slot	Type	Address	Subnet
PLC_1	CPU 1211C AC/D...	1 X1	PN/IE	192.168.0.1	

Type of the PG/PC interface: PN/IE

PG/PC interface: Intel(R) 82567LM-3 Gigabit Network Connect...

Connection to interface/subnet: Direct at slot '1 X1'

Extended download to device (0132:000008)

An additional IP address was added.

The IP address 192.168.0.241 was added to the interface Intel(R) 82567LM-3 Gigabit Network Connection.

OK

Flash LED

Start search

Online status information:

Retrieving device information...

Scanning and information retrieval completed. 1 problem found.

Display only error messages

Load | Cancel

Overview | PLC_1 | Main

Project magdysudan created.

TIA program download to PLC:



Siemens - C:\Users\ami\Documents\Automation\magdysudan\magdysudan

Project Edit View Insert Online Options Tools Window Help

Save project Go online Go offline

Totally Integrated Automation
PORTAL

Project tree | magdysudan ▸ PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks | Instructions

Devices | Details List Thumbnails | Options

Load results

Status and actions after downloading to device

Status	!	Target	Message	Action
		PLC_1	Downloading to device completed without error.	
		Start modules	Start modules after downloading to device.	☑ Start all

Finish Load Cancel

Network 2:

100%

Properties Info Diagnostics

Extended instructi...
Technology
Communication

TIA software monitoring:



\utomation\magdysudan\magdysudan

Options Tools Window Help

Go online Go offline

Totally Integrated Automation
PORT

magdysudan ▸ PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks

Details List Thumbnails

Actions

Add new block

Organization blocks (OB)

... PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks ▸ Main [OB1]

Block interface

Monitoring on/off

Network 1: .....

Comment

%I0.0 "Tag_1"

%I0.1 "Tag_3"

%Q0.0 "Tag_2"

%Q0.0 "Tag_2"

100%

Properties Info Diagnostics

Testing

Options

CPU operator par

PLC_1 [CPU 1211C AC/

RUN / STOP

ERROR

MAINT

Call environment

No condition defined.

Change ...

Breakpoints

Enable output in run

This device does not sup

Call hierarchy

TIA software symbol Table (Tag Table):



	Name	Tag table	Data type	Address
1	start	Default tag table	Bool	%I0.0
2	stop	Default tag table	Bool	%Q0.0
3	motor	Default tag table	Bool	%I0.1
4	<Add new>			

TIA software (SET/RESET):



Siemens - C:\Users\magdy.jelecommagdy\Documents\Automation\magdy\magdy

Project Edit View Insert Online Options Tools Window Help

Save project Go online Go offline

Totally Integrated Automation PORTAL

Project tree | ...agdy ▸ PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks ▸ Main [OB1] | Instructions

Devices

- magdy
  - Add new device
  - Devices & networks
  - PLC_1 [CPU 1211C ...
    - Device configurat...
    - Online & diagnost...
    - Program blocks
      - Add new block
      - Main [OB1]
    - Technology objects
    - External source file:
    - PLC tags
    - PLC data types
    - Watch and force t...
    - Online backups
    - Traces
    - Device proxy data
    - Program info

Details view

Name | Add...

Block interface

Block title: "Main Program Sweep (Cycle)"

omment

Network 1: .....

Comment

%I0.0 "Tag_1" —| |— ... —(S)— %Q0.0 "Tag_2"

Network 2: .....

Comment

%I0.1 "Tag_3" —| |— ... —(R)— %Q0.0 "Tag_2"

Network 3: .....

100%

Properties | Info | Diagnostics

General | Cross-references | Compile | Syntax

Options

Favorites

Basic instructions

Name

- General
- Bit logic operations
- Timer operations
- Counter operations
- Comparator operations
- Math functions
- Move operations
- Conversion operations
- Program control oper...
- Word logic operations
- Shift and rotate

Extended instructions

Technology

Communication

Optional packages

Instructions | Testing | Tasks | Libraries

PLC programming

Portal view | Overview | PLC_1 | Main

Project magdy opened.







15:01 09/08/2016

TIA software (POSITIVE EDGE):



Siemens - C:\Users\magdy.jelecommagdy\Documents\Automation\magdy\magdy

Project Edit View Insert Online Options Tools Window Help

Save project Go online Go offline

Totally Integrated Automation PORTAL

Project tree

Devices

- magdy
  - Add new device
  - Devices & networks
  - PLC_1 [CPU 1211C ...
    - Device configurat...
    - Online & diagnost...
    - Program blocks
      - Add new block
      - Main [OB1]
    - Technology objects
    - External source file:
    - PLC tags
    - PLC data types
    - Watch and force t...
    - Online backups
    - Traces
    - Device proxy data
    - Program info

Details view

Name	Add...

PLC programming

...agdy ▸ PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks ▸ Main [OB1]

Block interface

Network 1: .....

Comment

%I0.0 "Tag_1" — %I0.0 "Tag_1" (P) %M20.0 "Tag_4" — %Q0.0 "Tag_2" (normally closed) — %M0.0 "Tag_5" (S)

%Q0.0 "Tag_2" — %M0.0 "Tag_5" (R)

Network 2: .....

Comment

%M0.0 "Tag_5" — %Q0.0 "Tag_2" ( )

100%

Properties Info Diagnostics

General Cross-references Compile Syntax

Instructions

Options

Favorites

Basic instructions

Name

- General
- Bit logic operations
- Timer operations
- Counter operations
- Comparator operations
- Math functions
- Move operations
- Conversion operations
- Program control oper...
- Word logic operations
- Shift and rotate

Extended instructions

Technology

Communication

Optional packages

Instructions Testing Tasks Libraries

Portal view Overview PLC_1 Main

Project magdy opened.








15:02
09/08/2016

TIA software Timers:

Length (bits)	Format	Value range
32	Signed duration	T#-24d20h31m23s648ms to T#+24d20h31m23s647ms

Basic instructions

Name

General

Bit logic operations

Timer operations

TP

TON

TOF

TONR

-(TP)-

-(TON)-

-(TOF)-

-(TONR)-

-(RT)-

-(PT)-

Counter operations

Common data

Documentation setti...

Languages & resource

Online access

Card Reader/USB memory

Details view

%DB1

"IEC_Timer_0_DB"

TONR

Time

%I0.0

"start"

IN

Q

%Q0.0

"stop"

%I0.1

"motor"

R

ET

%MD0

"Tag_1"

t#5s

PT

TIA software (ON-DELAY TIMER):



Siemens - C:\Users\magdy.jelecommagdy\Documents\Automation\magdy\magdy

Project Edit View Insert Online Options Tools Window Help

Save project | Go online | Go offline

Totally Integrated Automation
PORTAL

Project tree

Devices

- magdy
  - Add new device
  - Devices & networks
  - PLC_1 [CPU 1211C ...
    - Device configurat...
    - Online & diagnost...
    - Program blocks
      - Add new block
      - Main [OB1]
      - System blocks
    - Technology objects
    - External source file
    - PLC tags
    - PLC data types
    - Watch and force t...
    - Online backups
    - Traces
    - Device proxy data

Details view

Name	Add...

PLC programming

...agdy ▸ PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks ▸ Main [OB1]

Block interface

Network 1: .....

Comment

%DB1
"IEC_Timer_0_DB"
TON
Time
%I0.0 "Tag_1" — IN Q — %M0.0 "Tag_5"
T#5MS — PT ET — ...

Network 2: .....

Comment

%M0.0 "Tag_5" — %Q0.0 "Tag_2"

Network 3: .....

100%

Properties | Info | Diagnostics

General | Cross-references | Compile | Syntax

Instructions

Options

Favorites

Basic instructions

Name
- General
- Bit logic operations
  - -||-
  - -|/|-
  - -|NOT|-
  - -( )-
  - -(/)-
  - -(R)
  - -(S)
  - SET_BF
  - RESET_BF

Extended instructions
Technology
Communication
Optional packages

Instructions | Testing | Tasks | Libraries

Portal view | Overview | PLC_1 | Main | Project magdy opened.









TIA software (OFF-DELAY TIMER):



Siemens - C:\Users\magdy.jelecommagdy\Documents\Automation\magdy\magdy

Project Edit View Insert Online Options Tools Window Help

Totally Integrated Automation PORTAL

Save project | Go online | Go offline

Project tree | ...agdy ▸ PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks ▸ Main [OB1] | Instructions

Devices

- magdy
  - Add new device
  - Devices & networks
  - PLC_1 [CPU 1211C ...
    - Device configurat...
    - Online & diagnost...
    - Program blocks
      - Add new block
      - Main [OB1]
      - System blocks
    - Technology objects
    - External source file:
    - PLC tags
    - PLC data types
    - Watch and force t...
    - Online backups
    - Traces
    - Device proxy data

Details view

Name	Add...

Block interface

Network 1: .....

Comment

%DB1 "IEC_Timer_0_DB"

%I0.0 "Tag_1" — TOF Time (IN, PT T#5MS; Q, ET ...) — %M0.0 "Tag_5"

Network 2: .....

Comment

%M0.0 "Tag_5" — %Q0.0 "Tag_2"

Network 3: .....

100%

Properties | Info | Diagnostics

General | Cross-references | Compile | Syntax

Options

Favorites

Basic instructions

Name

- General
- Bit logic operations
  - -||-
  - -|/|-
  - -|NOT|-
  - -( )-
  - -(/)-
  - -(R)
  - -(S)
  - SET_BF
  - RESET_BF

Extended instructions

Technology

Communication

Optional packages

Instructions | Testing | Tasks | Libraries

PLC programming

Portal view | Overview | PLC_1 | Main

Project magdy opened.









No speakers or headphones are plugged in.

09/08/2016

TIA software (RETENTIVE ON-DELAY TIMER):



Siemens - C:\Users\magdy.jelecommagdy\Documents\Automation\magdy\magdy

Project Edit View Insert Online Options Tools Window Help

Save project | Go online | Go offline

Totally Integrated Automation PORTAL

Project tree | ...agdy ▸ PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks ▸ Main [OB1] | Instructions

Devices

- magdy
  - Add new device
  - Devices & networks
  - PLC_1 [CPU 1211C ...
    - Device configurat...
    - Online & diagnost...
    - Program blocks
      - Add new block
      - Main [OB1]
      - System blocks
    - Technology objects
    - External source file:
    - PLC tags
    - PLC data types
    - Watch and force t...
    - Online backups
    - Traces
    - Device proxy data

Details view

Name	Add...

Block interface

Network 1: .....

Comment

%DB1
"IEC_Timer_0_DB"
TONR
Time
%I0.0 "Tag_1" — IN Q — %M0.0 "Tag_5"
... — R ET — ...
T#5MS — PT

Network 2: .....

Comment

%M0.0 "Tag_5" — %Q0.0 "Tag_2"

100%

Properties | Info | Diagnostics

General | Cross-references | Compile | Syntax

Options

Favorites

Basic instructions

Name
- General
- Bit logic operations
  - -| |-
  - -|/|-
  - -|NOT|-
  - -( )-
  - -(/)-
  - -(R)
  - -(S)
  - SET_BF
  - RESET_BF

Extended instructions

Technology

Communication

Optional packages

PLC programming | Instructions | Testing | Tasks | Libraries

Portal view | Overview | PLC_1 | Main | Project magdy opened.








TIA software (PULSE TIMER):



Siemens - C:\Users\magdy.jelecommagdy\Documents\Automation\magdy\magdy

Totally Integrated Automation PORTAL

...agdy ▸ PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks ▸ Main [OB1]

Project tree

- magdy
  - Add new device
  - Devices & networks
  - PLC_1 [CPU 1211C ...
    - Device configurat...
    - Online & diagnost...
    - Program blocks
      - Add new block
      - Main [OB1]
    - System blocks
    - Technology objects
    - External source file
    - PLC tags
    - PLC data types
    - Watch and force t...
    - Online backups
    - Traces
    - Device proxy data

Details view

Network 1:

%DB1 "IEC_Timer_0_DB"

%I0.0 "Tag_1" — TP Time (IN, PT, Q, ET) — %M0.0 "Tag_5"

T#5MS

Network 2:

%M0.0 "Tag_5" — %Q0.0 "Tag_2"

Network 3:

Instructions

Options

Favorites

Basic instructions

- General
- Bit logic operations
  - -| |-
  - -|/|-
  - -|NOT|-
  - -( )-
  - -(/)-
  - -(R)
  - -(S)
  - SET_BF
  - RESET_BF

Extended instructions

Technology

Communication

Optional packages

Properties | Info | Diagnostics

General | Cross-references | Compile | Syntax

تشغيل خرج لفترة زمنية معينة حتى لو انقطعت الاشارة عن التايمر

TIA software Counters:



Siemens - C:\Users\magdy.jelecommagdy\Documents\Automation\magdy\magdy

Project Edit View Insert Online Options Tools Window Help

Save project Go online Go offline

Totally Integrated Automation PORTAL

Project tree

Devices

- magdy
  - Add new device
  - Devices & networks
  - PLC_1 [CPU 1211C ...
    - Device configurat...
    - Online & diagnost...
    - Program blocks
      - Add new block
      - Main [OB1]
    - System blocks
    - Technology objects
    - External source file:
    - PLC tags
    - PLC data types
    - Watch and force t...
    - Online backups
    - Traces
    - Device proxy data

PLC programming

...agdy ▸ PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks ▸ Main [OB1]

Block interface

%DB2
"IEC_Counter_0_DB"

CTUD

CTU
CTD
CTUD

%I0.0 "Tag_1"

%M0.0 "Tag_5"

QU ...

%I0.1 "Tag_3" CD CV ...

%I0.2 "Tag_6" R

%I0.3 "Tag_7" LD

5 PV

Instructions

Options

Favorites

Basic instructions

Name

- General
- Bit logic operations
- Timer operations
- Counter operations
  - CTU
  - CTD
  - CTUD

Instructions Testing Tasks Libraries

TIA software (UP COUNTER):



Siemens - C:\Users\magdy.jelecommagdy\Documents\Automation\magdy\magdy

Project Edit View Insert Online Options Tools Window Help

Save project   Go online   Go offline

Totally Integrated Automation PORTAL

Project tree

Devices

- magdy
  - Add new device
  - Devices & networks
  - PLC_1 [CPU 1211C ...
    - Device configurat...
    - Online & diagnost...
    - Program blocks
      - Add new block
      - Main [OB1]
      - System blocks
    - Technology objects
    - External source file
    - PLC tags
    - PLC data types
    - Watch and force t...
    - Online backups
    - Traces
    - Device proxy data

Details view

Name	Add...

...agdy ▸ PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks ▸ Main [OB1]

Block interface

%DB2
"IEC_Counter_0_DB"

%I0.0 "Tag_1" — CU — CTU Int — Q — %M0.0 "Tag_5"

%I0.1 "Tag_3" — R

5 — PV

CV — ...

Network 2: .....

Comment

%M0.0 "Tag_5" — %Q0.0 "Tag_2"

Network 3: .....

100%

Properties   Info   Diagnostics

General   Cross-references   Compile   Syntax

Instructions

Options

Favorites

Basic instructions

Name

- General
- Bit logic operations
- Timer operations
- Counter operations
  - CTU
  - CTD
  - CTUD
- Comparator operatic
- Math functions
- Move operations
- Conversion operatio

Extended instructions

Technology

Communication

Optional packages

Instructions   Testing   Tasks   Libraries

PLC programming

Portal view   Overview   PLC_1   Main

Project magdy opened.



TIA software (DOWN COUNTER):



Siemens - C:\Users\magdy.jelecommagdy\Documents\Automation\magdy\magdy

Project Edit View Insert Online Options Tools Window Help

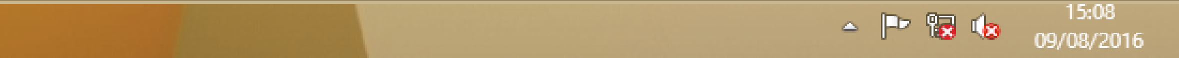
Totally Integrated Automation PORTAL

...agdy ▸ PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks ▸ Main [OB1]

Network 1: %DB2 "IEC_Counter_0_DB" — CTD Int; CD: %I0.0 "Tag_1"; LD: %I0.1 "Tag_3"; PV: 5; Q → %M0.0 "Tag_5"; CV

Network 2: %M0.0 "Tag_5" → %Q0.0 "Tag_2"

Network 3:



TIA software (UP/DOWN COUNTER):



Siemens - C:\Users\magdy.jelecommagdy\Documents\Automation\magdy\magdy

Project Edit View Insert Online Options Tools Window Help

Save project | Go online | Go offline

Totally Integrated Automation PORTAL

Project tree | ...agdy ▸ PLC_1 [CPU 1211C AC/DC/Rly] ▸ Program blocks ▸ Main [OB1] | Instructions

PLC programming

Devices

- magdy
  - Add new device
  - Devices & networks
  - PLC_1 [CPU 1211C ...
    - Device configurat...
    - Online & diagnost...
    - Program blocks
      - Add new block
      - Main [OB1]
    - System blocks
    - Technology objects
    - External source file
    - PLC tags
    - PLC data types
    - Watch and force t...
    - Online backups
    - Traces
    - Device proxy data

Details view

Name | Add...

Block interface

%DB2
"IEC_Counter_0_DB"

CTUD
Int

%I0.0 "Tag_1" — CU | QU — %M0.0 "Tag_5"

%I0.1 "Tag_3" — CD | QD

%I0.2 "Tag_6" — R | CV — ...

%I0.3 "Tag_7" — LD

5 — PV

Network 2: .....

Comment

%M0.0 "Tag_5" — %Q0.0 "Tag_2"

100%

Properties | Info | Diagnostics

General | Cross-references | Compile | Syntax

Options

Favorites

Basic instructions

Name

- General
- Bit logic operations
- Timer operations
- Counter operations
  - CTU
  - CTD
  - CTUD
- Comparator operatic
- Math functions
- Move operations
- Conversion operatio

Extended instructions

Technology

Communication

Optional packages

Instructions | Testing | Tasks | Libraries

Portal view | Overview | PLC_1 | Main

Project magdy opened.



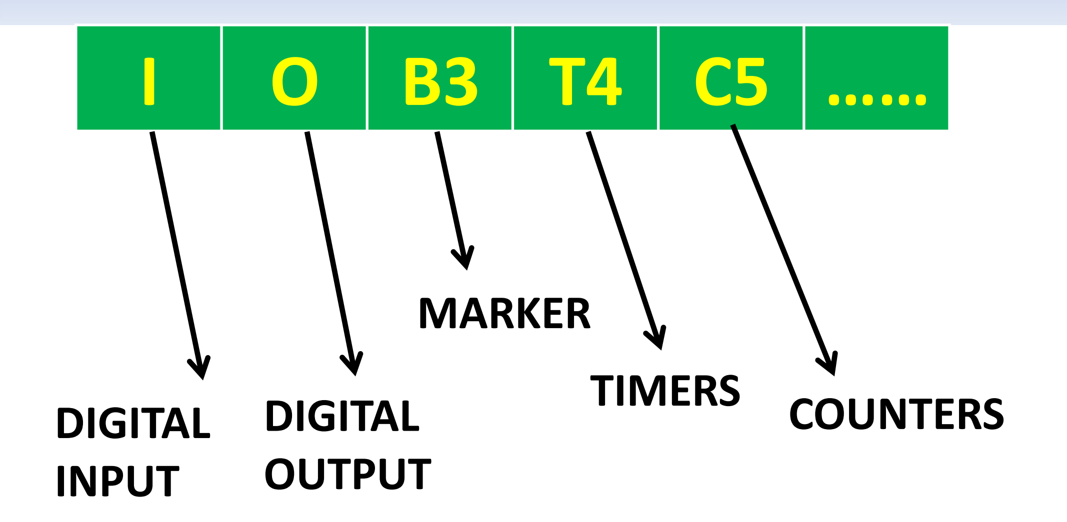






PLC ALLEN BRADELY:





BIT:

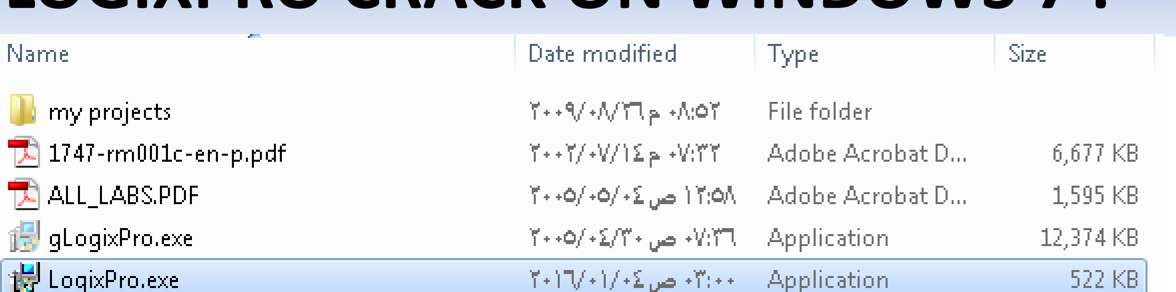
[Memory Area]: [WORD] /[Bit]

EX.: I:0/0 , O:3/0 , B3:0/0

I - AREA

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
I:0/15															I:0/0	0
															I:1/0	1
																2
																3
																.

LOGIXPRO CRACK ON WINDOWS 7 :



View
Sort by
Refresh
Paste
Paste shortcut
Undo Rename Ctrl+Z
Shared Folder Synchronization
خصائص الرسوم...
خيارات الرسوم
New
Screen resolution
Gadgets
Personalize

Folder
Shortcut
Microsoft Access Database
Contact
Microsoft Word Document
Journal Document
STEP 7-MicroWIN Project
Microsoft PowerPoint Presentation
Microsoft Publisher Document
WinRAR archive
Text Document
Microsoft Excel Worksheet
WinRAR ZIP archive
Briefcase

New Text Document.txt - Notepad
File Edit Format View Help
logixpro register

New Text Document.txt - Notepad
File Edit Format View Help
New Ctrl+N
Open... Ctrl+O
Save Ctrl+S
Save As...
Page Setup...
Print... Ctrl+P
Exit
ster

LOGIXPRO CRACK ON WINDOWS 7 :



Save As

Desktop ▸ | Search Desktop

Organize ▾ New folder

Favorites
Desktop
Downloads
Recent Places

Libraries
Documents
Music
Pictures
Videos

Computer

Libraries
System Folder

pc1
System Folder

Computer
System Folder

Network
System Folder

[PLC] SIMULATION

File name: New Text Document.bat

Save as type: Text Documents (*.txt)

Hide Folders Encoding: ANSI Save Cancel

Enter Key

Enter the registration name and key below, exactly as given to you.

Hardware fingerprint: FFFF-FFFF (std), 5219-4EDF (enh)

Name: dT2004

Key: TUM-G0WR1H-N5K7JN-RG76PU-ZZRRPG

OK Cancel

Hydraulic txtbook.pdf
gSAP2000.... - Shortcut
[PLC] SIMULATION
print book1.pdf
SIMATIC Manager
New Text Document...
print book2.pdf
Automation License M...
Workbook - Hydraulic...
S7-PCT - Port Confi...

copy

« TheL... ▸ Logix... ▸ | Search Logix

Organize ▾ Include in library ▾ »

Favorites
Desktop
Downloads
Recent Places

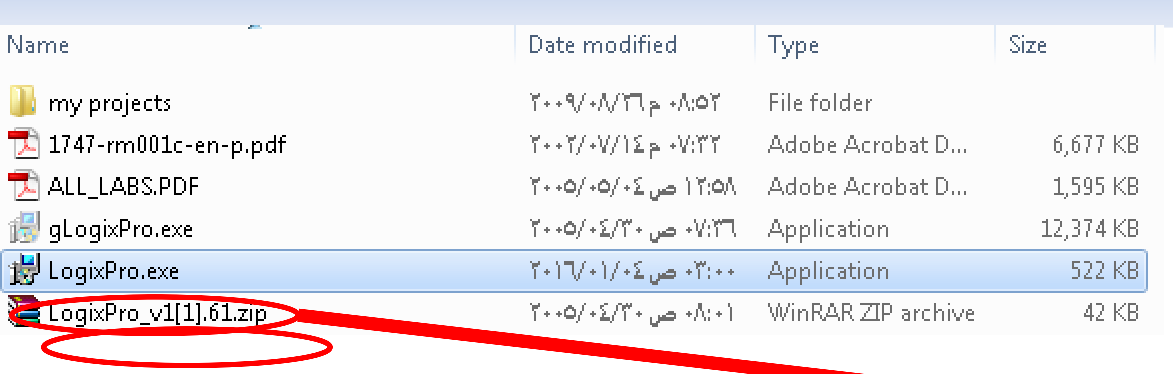
Libraries
Documents
Music
Pictures
Videos

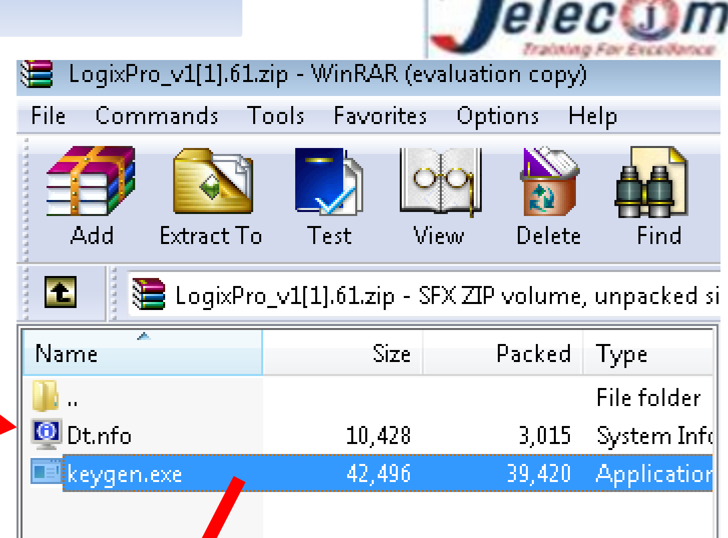
Computer
Local Disk (C:)
Local Disk (D:)

Name
doc
1747-rm001c-en-p.pdf
LogixPro.exe
New Text Document.bat
Readme.txt
SendKey.txt
silo.rsl
Slcinset.hlp
unins000.dat
unins000.exe

Type: Windows B
Size: 17 bytes
Date modified:

LOGIXPRO CRACK ON WINDOWS 7 :





Key Valid

Key is valid, and has been stored.

OK

dT Keygen

User Name: dT2004

HWID: 5219-4EDF

Serial Number: K5FFGB-5Y4CN1-R1X7C1-0ERTUM-G0WR1H-N5K7JN-RG76PU-ZZRRPG

Generate

Enter Key

Enter the registration name and key below, exactly as given to you.

Hardware fingerprint: FFFF-FFFF (std), 5219-4EDF (enh)

Name: dT2004

Key: TUM-G0WR1H-N5K7JN-RG76PU-ZZRRPG

OK Cancel

LOGIXPRO simulator:



TLP LogixPro Simulator -

File Edit Simulations Settings Comms Help

- Welcome to ProSim II
- I/O Simulator
- Door Simulator
- Silo Simulator
- Traffic Simulator
- Batch Simulator
- BCD I/O Simulator
- Dual Compressor Simulator
- Bottle Line Simulator
- Elevator (4flr) Simulator
- Reset Simulation
- Reset Timers and Counters
- Clear All Data Files (Data Table)

OFFLINE

No Edits

Driver: CSS

ProSim

Copyright 2001 by Bill Simp

TLP LogixPro Simulator -

File Edit Simulations Settings Comms Help

- Calculator
- Student Exercises
- Rockwell RsLogix Instruction Help
- AB SLC® Instruction Set Reference Manual
- Online Ordering and Purchasing Information
- About the LogixPro Simulator

c:\program

OFFLINE | No Forces

No Edits | Forces Disabled

Driver: CSS DDE-Link

Node

ProSim Simulations

I/O Simulator II

I:1 O:2 I:3 O:4

00 01 02 03 04 05 06 07 08 09 10 11

BCD Simulat

I:5

0 0 0 0

LOGIXPRO simulator:



- Getting Started with RSLogix and LogixPro ...... Please Read..!

Student RSLogix Programming Exercises

- Relay Logic .... Introductory Exercise ...... (Espaöl)
- Door Simulation .... applying Relay Logic ...... (Espaöl)
- Silo Simulator .... applying Relay Logic to a Process ...... (Espaöl)
- PLC Timers .... Introductory Exercise
- Traffic Control .... applying Cascading TON Timers ...... (Espaöl)
- Word Compare .... Introductory Exercise
- Traffic Control .... applying Word Compare Instructions
- PLC Counters .... Introductory Exercise
- Batch Mixing .... applying PLC Counter Instructions
- Dual Compressor Exercise .... sharing the workload
- Advanced Batch Mixing Exercise .... your choice of instructions
- Bottle Line Simulation .... applying Bit Shift Instructions
- Multi Floor Elevator Control .... which way to Go?
- Interfacing to 7-Segment Displays .... includes Bottle Line wiring details

Toggle

Edit Panel

OSR

User | Bit | Timer/Counter | Compare | Compute/Math

PLC Panel

PLC = OnLine

DownLoad

RUN STEP PGM IN OUT

000 Scans

LOGIXPRO I/O simulator:



LOGIXPRO mixer simulator:





ADDITIONAL CIRCUITS

دوائر إضافيـة

S7-200 SPECIAL MEMORY(SM-AREA):



SM - AREA

7	6	5	4	3	2	1	0	
		SM0.5				SM0.1	SM0.0	0
								1
								.

S7-200 Symbol Name	SM Addr.	User programs *read* SMB0 status data
Always_On	SM0.0	This bit is always ON.
First_Scan_On	SM0.1	This bit is ON for the first scan cycle only. One use is to call an initialization subroutine.
Retentive_Lost	SM0.2	This bit is turned ON for one scan cycle if retentive data was lost. This bit can be used as either an error memory bit or as a mechanism to invoke a special startup sequence.
RUN_Power_Up	SM0.3	This bit is turned ON for one scan cycle when RUN mode is entered from a power-up condition. This bit can be used to provide machine warm-up time before starting an operation.
Clock_60s	SM0.4	This bit provides a clock pulse that is OFF for 30 seconds and ON for 30 seconds, for a cycle time of 1-minute. It provides an easy-to-use delay or a 1-minute clock pulse.
Clock_1s	SM0.5	This bit provides a clock pulse that is OFF for 0.5 seconds and then ON for 0.5 seconds for a cycle time of 1 second. It provides an easy-to-use delay or a 1-second clock pulse.
Clock_Scan	SM0.6	This bit is a scan cycle clock that is ON for one scan and then OFF for the next scan. This bit can be used as a scan counter input.
Mode_Switch	SM0.7	This bit indicates the current position of the Mode switch (OFF=TERM position and ON=RUN position). You can use this bit to enable Freeport mode only when the switch is in the RUN position. Normal communication with the PC/programming device can be re-enabled by switching to the TERM position.

ENCODER AND HIGH SPEED COUNTER:



ENCODER:

هو جهاز يستخدم لتتبع حركة الموتور يمينا ام يسارا سريع أو بطئ ويمكن استخدامه لقياس سرعة الموتورأو تحديد وجهة الموتور اي متي يتحرك واين ومتي يتوقف.

ENCODER IDEA OF WORK:

فكرة العمل قائمة على فكرة من اثنين :

-- وجود LED و photodiode حيث تصدر LED الضوء فاذا استقبل سطح فاتح اللون هذا الضوء فانه يعكس الضوء الي PHOTODIODE فيقوم باعطاء اشارة واذا قابل الضوء سطح داكن فان PHOTODIODEلا يستقبل الضوء وبالتالي تنقطع الاشارة كما هو في الغالب في ROTARY ENCODER .

-- وجود MAGNETIC SENSORS وقطع مغناطيس فكلما وجد MAGNETIC SENSOR مغناطيس أمامه فانه يصدراشارة وان لم يجد تنقطع هذه الاشارة كما هو في الغالب في absolute encoder .



INCREMENTAL / ROTARY ENCODER:

COUPLING

ROTARY ENCODER

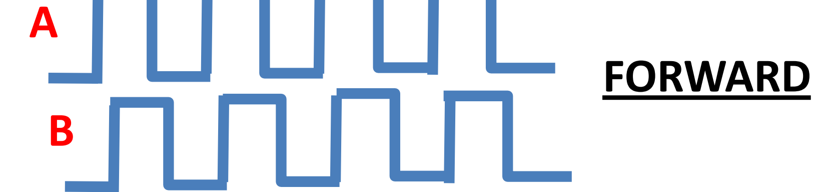
24V	بني
0V	أزرق
OUT Z	برتقالي
OUT A	أسود
OUT B	أبيض

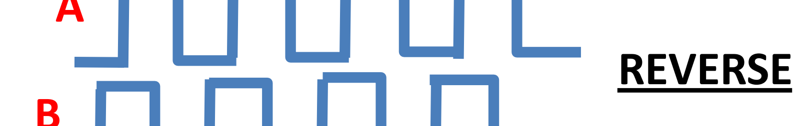
لهذا ال ENCODER طرفين للتغذية حيث يأخذ 12-24VDC علي الطرفين البني والأزرق ويعمل علي نظامين :

-- الخرج Z ....وهو يخرج مجموعة من النبضات (يتزايد عددها مع زيادة سرعة الموتور) طالما يتحرك الموتور سواء يمينا أو يسارا ويستخدم هذا النظام للاستدلال علي الحركة وقياس السرعة



-- الخرجين A-B ....ويستخدما لمعرفة وجهة الموتور اذا كان يتحرك يمينا او يسارا(عد تصاعدى أوتنازلي)





ENCODER TYPES:



INCREMENTAL / ROTARY ENCODER:

A

B

A

B

Z

Z

ENCODER TYPES:



ABSOLUTE/BINARY ENCODER:

COUPLING

BINARY ENCODER

24V

0V

OUT

12-bit/14-bit

لهذا ال ENCODER طرفين للتغذية حيث يأخذ 12-24VDC وله 12 خرج أو 14 خرج لتحديد الزاوية التي يتحركها الموتور من 0 الي 360 .

B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1	B0	DEGREE
0	0	0	0	0	0	0	0	0	0	0	0	0
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
1	1	1	1	1	1	1	1	1	1	1	1	360

ENCODER WITH PLC:



هذا الكلام ينطبق علي أجهزة PLC التي تدعم HIGH SPEED COUNTER لأن العدادات العادية لا تستطيع التواصل مع السرعة العالية لحركة الموتور وهذا من خلال الانماط الاتية:

Single phase counter with one direction:

Current value loaded to 0, preset loaded to 4, counting direction set to Up.
Counter enable bit set to enabled.

PV=CV interrupt generated
Direction changed within interrupt routine

Clock 1 0

Internal Direction Control (1 = Up) 1 0

Counter Current Value 0

1 2 3 4 3 2 1 0 -1

لمراقبة حركة الموتور سريعا أم بطيئا للتوجيه ولقياس سرعته ويمكن تحديد اذا كان العداد تصاعديا ام تنازليا من خلال INSTRUCTION WIZARD الخاص ببرنامج PLC .

ENCODER WITH PLC:



Single phase counter with one direction with external input:

Current value loaded to 0, preset loaded to 4, counting direction set to Up.
Counter enable bit set to enabled.

PV=CV interrupt generated

PV=CV interrupt generated and
Direction Changed interrupt generated

Clock 1 0

External Direction Control (1 = Up) 1 0

5 4 4 3 3 2 2 1 1

Counter Current Value 0

لمراقبة حركة الموتور سريعا أم بطيئا للتوجيه ولقياس سرعته ويمكن تحديد اذا كان العداد تصاعديا ام تنازليا من خلال اعطاء الاشارة علي نقطة الدخل المعرفة من خلال برنامج PLC

ENCODER WITH PLC:



Single phase counter with two directions:

Current value loaded to 0, preset loaded to 4, initial counting direction set to Up.
Counter enable bit set to enabled.

PV=CV interrupt generated

PV=CV interrupt generated and
Direction Changed interrupt generated

Count Up Clock 1 0

Count Down Clock 1 0

Counter Current Value 0

1 2 3 4 5 4 3 2 1

اثنان من نقاط دخل PLC أحدهما يزيد عدد العداد والأخر ينقص عدد العداد ويمكن معرفتهما من خلال instruction wizard الخاص ببرنامج plc .

ENCODER WITH PLC:



two phase counter A/B(1X):

Current value loaded to 0, preset loaded to 3, initial counting direction set to Up. Counter enable bit set to enabled.

PV=CV interrupt generated

PV=CV interrupt generated and Direction Changed interrupt generated

Phase A Clock 1 0

Phase B Clock 1 0

Counter Current Value 0

1 2 3 4 3 2

اثنان من نقاط دخل PLC ....A-B يمكن معرفتهما من خلال instruction wizard الخاص ببرنامج PLC فاذا سبق A ال B فهذا يزيد العدد ولو سبق B ال A فان ذلك ينقص العدد ولو أضفنا RESET خارجي فان العدد الموجب يعني وجهة الموتور FORWARD واذا كان العدد سالب فهذا يعني ان وجهة الموتور REVERSE.

ENCODER WITH PLC:



two phase counter A/B(4X):

Current value loaded to 0, preset loaded to 9, initial counting direction set to Up. Counter enable bit set to enabled.

PV=CV interrupt generated

Direction Changed interrupt generated

PV=CV interrupt generated

Phase A Clock 1 0

Phase B Clock 1 0

Counter Current Value 0

1 2 3 4 5 6 7 8 9 10 11 12 11 10 9 8 7 6

اثنان من نقاط دخل PLC ....A-B يمكن معرفتهما من خلال instruction wizard الخاص ببرنامج PLC فاذا سبق A ال B فهذا يزيد العدد مع A مرة ومع B مرة أخري ولو سبق B ال A فان ذلك ينقص العدد مع B مرة ومع A مرة أخرى وهذا يساعد في التأكد من صحة حركة الموتور في الاتجاه المناسب.

ENCODER WITH PLC SIEMENS S7-200:



HSC Mode	Description	Inputs			
	HSC0	I0.0	I0.1	I0.2	
	HSC1	I0.6	I0.7	I1.0	I1.1
	HSC2	I1.2	I1.3	I1.4	I1.5
	HSC3	I0.1			
	HSC4	I0.3	I0.4	I0.5	
	HSC5	I0.4			
0	Single-phase counter with **internal** direction control	Clock			
1		Clock		Reset	
2		Clock		Reset	Start
3	Single-phase counter with **external** direction control	Clock	Direction		
4		Clock	Direction	Reset	
5		Clock	Direction	Reset	Start
6	Two-phase counter with 2 clock inputs	Clock Up	Clock Down		
7		Clock Up	Clock Down	Reset	
8		Clock Up	Clock Down	Reset	Start
9	A / B phase quadrature counter	Clock A	Clock B		
10		Clock A	Clock B	Reset	
11		Clock A	Clock B	Reset	Start
12	Only HSC0 and HSC3 support mode 12. HSC0 counts the number of pulses going out of Q0.0. HSC3 counts the number of pulses going out of Q0.1.				

ENCODER WITH PLC SIEMENS S7-200:



STEP 7-Micro/WIN - Project1 - [SIMATIC LAD]

File Edit View PLC Debug Tools Windows Help

Instruction Wizard...
Text Display Wizard...
S7-200 Explorer...
TD Keypad Designer...

Position Control Wizard...
EM 253 Control Panel...
Modem Expansion Wizard...
Ethernet Wizard...
AS-i Wizard...
Internet Wizard...
Recipe Wizard...
Data Log Wizard...
PID Tune Control Panel...

Customize...
Options...

View
Program Block
Symbol Table
Status Chart
Data Block
System Block
Cross Reference

Project1
What's N
CPU 226
Program B
Symbol Ta
Status Ch
Data Bloc
System Bl
Cross Ref
Communic
Wizards
Tools
Instructions
Favorites
Bit Logic
Clock
Communic
Compare
Convert
Counters
CTU
CTD
CTUD
HDEF
HSC

Var Type
TEMP
TEMP
TEMP
TEMP

Title

Network 2

ENCODER WITH PLC SIEMENS S7-200:



IN - Project1 - [SIMATIC LAD]

ew PLC Debug Tools Windows Help

Instruction Wizard

This S7-200 Instruction wizard will allow configuring complex operations quickly and easily. The wizard will present a series of options for the requested formula. Upon completion, the wizard will generate the program code for the selected configuration.

The following is a list of the instruction formulae that the wizard supports. What instruction formula would you like to configure?

- PID
- NETR/NETW
- HSC

Configure the operations of a High Speed Counter.

To begin configuring the selected formula, click Next.

Next Cancel

ENCODER WITH PLC SIEMENS S7-200:



Instruction Wizard HSC

The selected PLC type provides the following l
12 modes of operation.

Which Counter would you like to configure?

HC0

HC0
HC1
HC2
HC3
HC4
HC5

Counter's mode of operation
t and Reset inputs are used.

Mode Description

Mode 0

Single phase up/do
No Reset input.

Instruction Wizard HSC

The selected PLC type provides the following
12 modes of operation.

Which Counter would you like to configure?

HC0

The High Speed Counter's mode of operatio
and whether Start and Reset inputs are usec

Mode

Mode 0

Mode 0
Mode 1
Mode 3
Mode 4
Mode 6
Mode 7
Mode 9
Mode 10
Mode 12

Mode Description

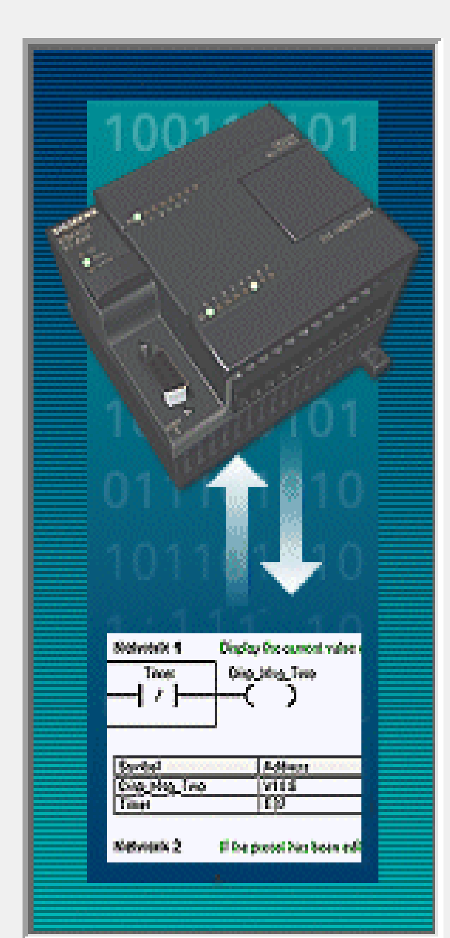
Single phase up/c
No Reset input.

ENCODER WITH PLC SIEMENS S7-200:





Instruction Wizard HSC



HC0 is selected to be configured for mode 0 operation. The following initialization options are available for this counter in this mode:

HC Initialization Options

The wizard will create a subroutine for Counter Initialization. What should this subroutine be named? MOTOR1

Enter a DWORD address, global symbol, or integer literal for the counter Preset (PV) 0

Enter a DWORD address, global symbol, or integer literal for the counter Current (CV) 0

Enter the initial counting Direction Up

Up
Down

Should the Reset input be active High or Low?

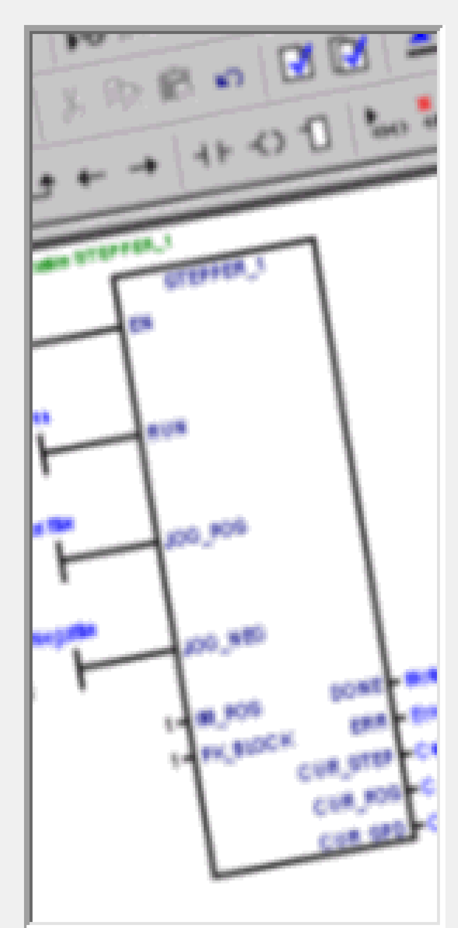
Should the Start input be active High or Low? High

Should the Counting Rate be 1X or 4X? 4X

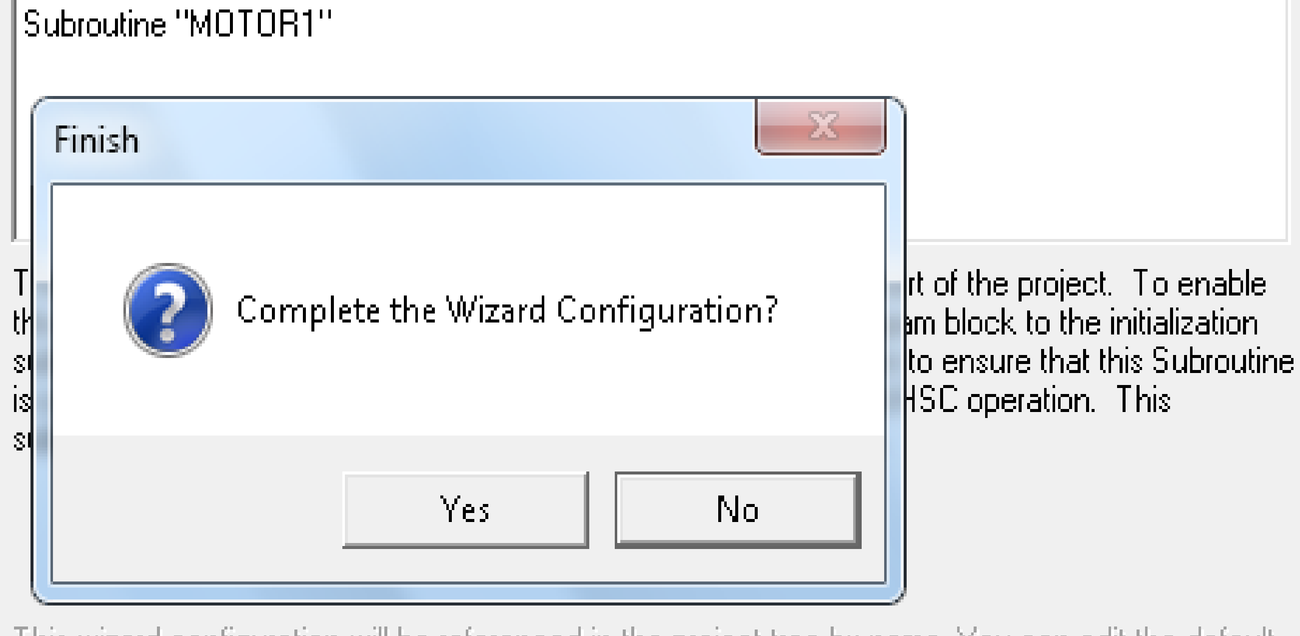
<Prev Next> Cancel

ENCODER WITH PLC SIEMENS S7-200:

Instruction Wizard HSC



The Instruction Wizard HSC will now generate the project components for your selected configuration and make that code available for use by your program. Your requested configuration consists of the following project components:



This wizard configuration will be referenced in the project tree by name. You can edit the default name to better identify this wizard configuration.

<Prev | Finish | Cancel

ENCODER WITH PLC SIEMENS S7-200:



Symbol Table
Status Chart
Data Block
System Block
Cross Reference
Communications
Set PG/PC Interface
Tools

Cross Reference
Communications
Wizards
Tools
Instructions
Favorites
Bit Logic
Clock
Communications
Compare
Convert
Counters
Floating-Point Math
Integer Math
Interrupt
Logical Operations
Move
Program Control
Shift/Rotate
String
Table
Timers
Libraries
Call Subroutines
SBR_0 (SBR0)
MOTOR1 (SBR1)

PROGRAM COMMENTS
Network 1 Network Title
Network Comment
SM0.1
MOTOR1
EN
Network 2
Network 3
Network 4
MAIN SBR_0 MOTOR1 INT_0

STEP 7-Micro/WIN - Project1 - [Status Chart]
File Edit View PLC Debug Tools Windows Help

View
Program Block
Symbol Table
Status Chart

	Address	Format	Current Value
1	HC0	Signed	
2		Signed	
3		Signed	
4		Signed	
5		Signed	



ماكينة المقص الكهربى:

Limit2
I0.5

Limit1
I0.4

Limit 4
I0.7

Limit3
I0.6

Q0.5 المقص لأعلى

Q0.4 المقص لأسفل

Q0.3 الذراع لأعلى

Q0.2 الذراع لأسفل

MOTOR2
Q0.1

MOTOR1
Q0.0

Photo
I1.2

90cm

START I1.0

STOP I1.1

-- ENCODER OUT TO I0.0(CTU) , I0.2(RESET)

-- Q0.7 CONNECTED TO I0.2, 1000 pulse for 30cm



ماكينة المقص الكهربى:

STEP 7-Micro/WIN - Project1 - [SIMATIC LAD]

File Edit View PLC Debug Tools Windows Help

View

Program Block
Symbol Table
Status Chart
Data Block
System Block
Cross Reference
Communications
Set PG/PC Interface

Project1
What's N
CPU 226
Program B
Symbol Ta
Status Ch
Data Bloc
System Bl
Cross Ref
Communic
Wizards
Tools
Instructions
Favorites
Bit Logic
Clock
Communic
Compare
Convert
Counters
Floating-Point Math
Integer Math
Interrupt
Logical Operations
Move
Program Control
Shift/Rotate
String
Table
Timers
Libraries
Call Subroutines
SBR_0 (SBR0)

Instruction Wizard...
Text Display Wizard...
S7-200 Explorer...
TD Keypad Designer...
Position Control Wizard...
EM 253 Control Panel...
Modem Expansion Wizard...
Ethernet Wizard...
AS-i Wizard...
Internet Wizard...
Recipe Wizard...
Data Log Wizard...
PID Tune Control Panel...
Customize...
Options...

Network 2

Network 3

Instruction Wizard

This S7-200 Instruction wizard will allow
wizard will present a series of options for
generate the program code for the selec

The following is a list of the instruction fo
would you like to configure?

PID
NETR/NETW
HSC

To begin configuring the selected formul

Subroutines
SBR_0 (SBR0)



ماكينة المقص الكهربى:

Instruction Wizard HSC

The selected PLC type provides the following 12 modes of operation.

Which Counter would you like to configure?

HC0

The High Speed Counter's mode of operation and whether Start and Reset inputs are used

Mode: Mode 1

Mode Description: Single phase up/c Uses Reset input.

HC1 is selected to be configured for mode 1 operation. The following initialization options are available for this counter in this mode:

HC Initialization Options

The wizard will create a subroutine for Counter Initialization. What should this subroutine be named? HSC_INIT

Enter a DWORD address, global symbol, or integer literal for the counter Preset (PV) 0

Enter a DWORD address, global symbol, or integer literal for the counter Current (CV) 0

Enter the initial counting Direction: Up

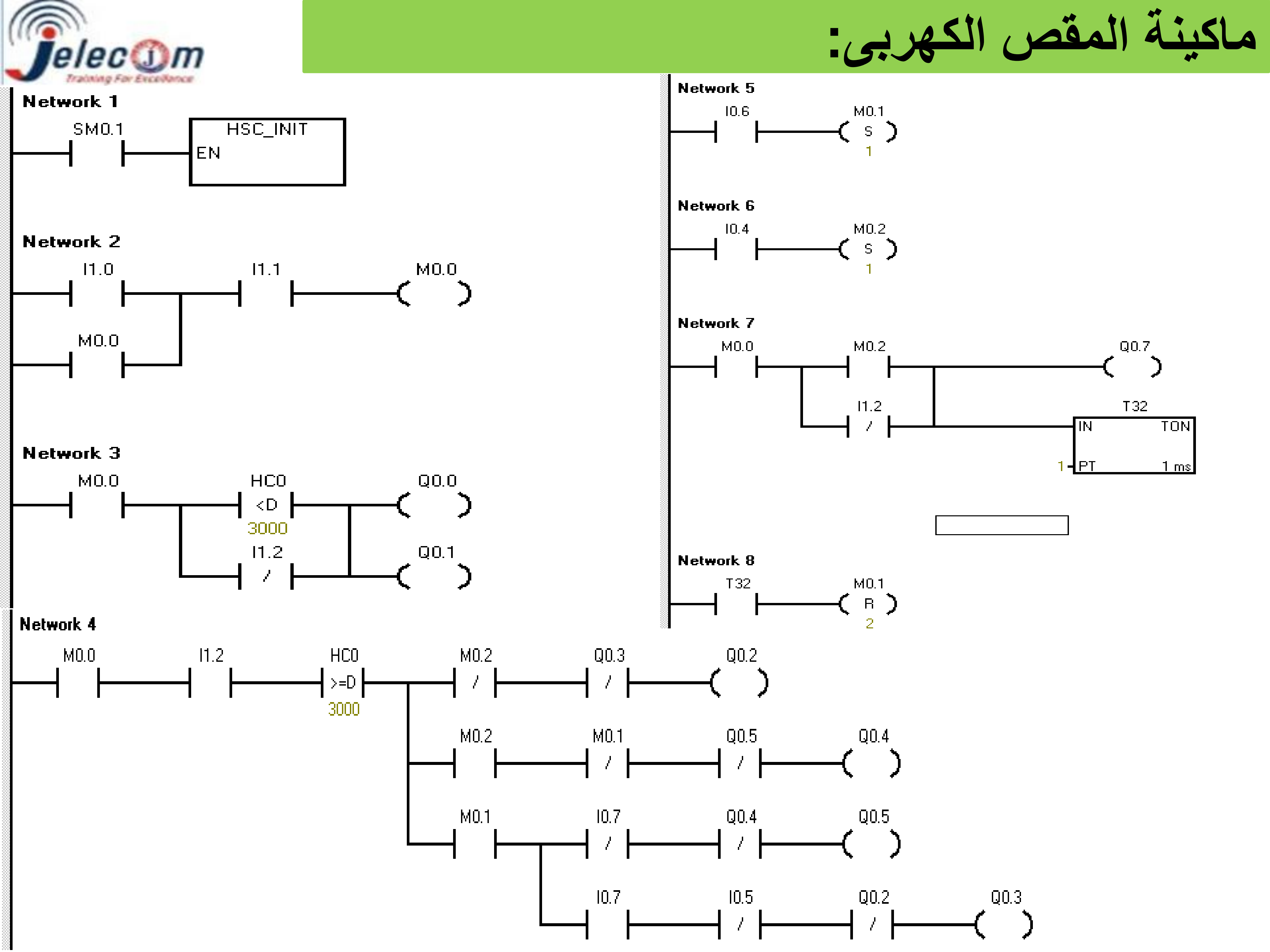
Should the Reset input be active High or Low? High

Should the Start input be active High or Low? High

Should the Counting Rate be 1X or 4X? 4X

<Prev | Next> | Cancel

HSC Mode	Description	Inputs			
	HSC0	I0.0	I0.1	I0.2	
	HSC1	I0.6	I0.7	I1.0	I1.1
	HSC2	I1.2	I1.3	I1.4	I1.5
	HSC3	I0.1			
	HSC4	I0.3	I0.4	I0.5	
	HSC5	I0.4			
0	Single-phase counter with	Clock			
1	**internal** direction control	Clock		Reset	
2		Clock		Reset	Start



ماكينة المقص الكهربى:
Jelecom
Training For Excellence
Network 1
SM0.1
HSC_INIT
EN
Network 2
I1.0
I1.1
M0.0
M0.0
Network 3
M0.0
HC0
<D
3000
Q0.0
I1.2
Q0.1
Network 4
M0.0
I1.2
HC0
>=D
3000
M0.2
Q0.3
Q0.2
M0.2
M0.1
Q0.5
Q0.4
M0.1
I0.7
Q0.4
Q0.5
I0.7
I0.5
Q0.2
Q0.3
Network 5
I0.6
M0.1
S
1
Network 6
I0.4
M0.2
S
1
Network 7
M0.0
M0.2
Q0.7
I1.2
T32
IN
TON
1
PT
1 ms
Network 8
T32
M0.1
R
2

INDIRECT REVERSE WITH ENCODER:



INDIRECT REVERSE WITH ENCODER:



Instruction Wizard HSC

The selected PLC type provides the following High Speed counters. Different counters support up to 12 modes of operation.

Which Counter would you like to configure?

HC0

The High Speed Counter's mode of operation determines what Clock and Directional inputs are used, and whether Start and Reset inputs are used. What mode of operation would you like?

Mode: Mode 10

Mode Description: A/B phase quadrature counter. No Start input; Uses Reset input.

<Prev | Next> | Cancel

Instruction Wizard HSC

HC0 is selected to be configured for mode 10 operation. The following initialization options are available for this counter in this mode:

HC Initialization Options

The wizard will create a subroutine for Counter Initialization. What should this subroutine be named?	HSC_INIT
Enter a DWORD address, global symbol, or integer literal for the counter Preset (PV)	0
Enter a DWORD address, global symbol, or integer literal for the counter Current (CV)	0
Enter the initial counting Direction	Up
Should the Reset input be active High or Low?	High
Should the Start input be active High or Low?	High
Should the Counting Rate be 1X or 4X?	1X

<Prev | Next> | Cancel

INDIRECT REVERSE WITH ENCODER(S7-200):



Network 1 Network Title

SM0.1 — HSC_INIT (EN)

Network 2

I1.0 — I1.2 — Q0.1 (/) — Q0.0 ( )

Q0.0

Network 3

I1.1 — I1.2 — Q0.0 (/) — Q0.1 ( )

Q0.1

Network 4

Q0.0 — T5 (IN TONR)

Q0.1

600 — PT 100 ms

Network 5

T5 — P — MOV_DW (EN ENO)

HC0 — IN OUT — MD0

Network 6

I1.2 (/) — T5 (R) 1

Q0.7 ( )

ENCODER WITH PLC SIEMENS S7-1200:



The HSCs claim the following CPU inputs (for type of counting: "Counting" or "Frequency"):

Table 1-4

	HSC_1	HSC_2	HSC_3	HSC_4	HSC_5	HSC_6
1.	I0.0	I0.2	I0.4	I0.6	I1.0	I1.3
2.	I0.1	I0.3	I0.5	I0.7	I1.1	I1.4
3.	I0.3	I0.1	I0.7	I0.5	I1.2	I1.5

In-put	SP	MP		
	Single phase	Two phase	AB Quadrature 1X	AB Quadrature 4X
1.	CLK	CLK UP	CLK A	CLK A
2.	[DIR]	CLK DN	CLK B	CLK B
3.	[R]	[R]	[R]	[R]

The 3rd input "[R]" is only available for the type of counting: "Counting".

CLK = clock input
[DIR] = optional external direction input
[R] = optional external reset input
CLK UP = clock up input
CLK DN = clock down input
CLK A = clock A input
CLK B = clock B input

ENCODER WITH PLC SIEMENS S7-1200:



Figure 1-1

	Inputs (Counting / Frequency)																			Outputs (Axis of motion)							
	CPU														Signal boards									all CPUs with DC outputs			
	CPU 1214C														4DI 200kHz				4DO 200kHz							
	CPU 1212C																2DI / 2DO (200 kHz)									
	CPU 1211C																									
I/Os	I0.0	I0.1	I0.2	I0.3	I0.4	I0.5	I0.6	I0.7	I1.0	I1.1	I1.2	I1.3	I1.4	I1.5	I4.3	I4.2	I4.1	I4.0	Q4.0	Q4.1	Q4.2	Q4.3	Q0.0	Q0.1	Q0.2	Q0.3
HSC_1	1	2		[R]											[R]		2	1	CLK	DIR			CLK	DIR		
HSC_2		[R]	1	2											2	1	[R]				CLK	DIR			CLK	DIR
HSC_3					1	2		[R]																		
HSC_4						[R]	1	2																		
HSC_5									1	2	[R]				[R]		2	1								
HSC_6												1	2	[R]	2	1	[R]									
																			PTO1		PTO2		PTO1		PTO2	

Rules:

1. For every HSC, only one in/out area can be choosen (CPU inputs, SB inputs, SB outputs, or CPU DC outputs).
2. Every input can be used with only one HSC.

Max. frequency [kHz]		CPU	Signal boards			
				200 kHz		
		DI/DO	2DI/2DO	2DI/2DO	4DI	4DO
HSC_1	SP	100/100	30/20	200/100	200	100
	MP	80/-	20/-	160/-	160	
HSC_2	SP	100/100			200	100
	MP	80/-			160	
HSC_3	SP	100/-				
	MP	80/-				
HSC_4	SP	30/-				
	MP	20/-				
HSC_5	SP	30/-	30/-	200/-	200	
	MP	20/-	20/-	160/-	160	
HSC_6	SP	30/-			200	
	MP	20/-			160	

Legend	Operating phase		
	Single phase	Two phase	AB Quadrature
1	CLK	CLK UP	CLK A
2	[DIR]	CLK DN	CLK B
[R]	optional external reset input (only for "counting")		
CLK	clock input		
DIR	direction input (for "axis of motion")		
[DIR]	optional external direction input (for "single phase")		
CLK UP	clock up input (for "two phase")		
CLK DN	clock down input (for "two phase")		
CLK A	clock A input (for "AB quadrature")		
CLK B	clock B input (for "AB quadrature")		
SP	Single phase		
MP	Multi-phase (Two phase / AB Quadrature)		
(green)	possible with all CPUs		
(yellow)	possible with CPU 1212C / CPU 1214C		
(orange)	possible only with CPU 1214C		
(light blue)	possible with SBs 1223 / SB 1221 DC 200kHz 4xDI		
(purple)	possible with SBs 1223 / SB 1222 DC 200kHz 4xDO		
(light yellow)	only possible with SB 1221 DC 200kHz 4xDI		
(pink)	only possible with SB 1222 DC 200kHz 4xDO		

ENCODER WITH PLC SIEMENS S7-1200(TIA):



Siemens - C:\Users\magdy\Documents\Automation\upperegypt\upperegypt

Project Edit View Insert Online Options Tools Window Help

Totally Integrated Automation
PORTAL

Project tree

Devices

upperegypt

PLC_1 [CPU 1211C AC/DC/Rly]

RIGHT CLICK

- Program blocks
- Technology objects
- External source files
- PLC tags
- PLC data types
- Watch and force tables
- Online backups
- Traces
- Device proxy data
- Local modules
- Common data
- Documentation settings
- Languages & resources
- Online access
- Card Reader/USB memory

Open
Open in new editor
Open block/PLC data type... F7
Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Delete Del
Rename F2
Go to topology view
Go to network view
Compile
Download to device
Backup from online device
Go online Ctrl+K
Go offline Ctrl+M
Online & diagnostics Ctrl+D
Snapshot of the monitor values
Apply snapshot values as start values
Start simulation Ctrl+Shift+X
Compare
Cross-references F11
Call structure
Assignment list
Print... Ctrl+P
Print preview...

Export module labeling strips...
Properties... Alt+Enter

upperegypt ▸ PLC_1 [CPU 1211C AC/DC/Rly]

Details List Thumbnails

External source files
PLC tags
Device proxy data
Program info

Diagnostics

Tasks

Options

Find and replace

Find:
Whole words only
Match case
Find in substructures
Find in hidden texts
Use wildcards
Use regular expressions
Whole document
From current position
Selection
Down
Up
Find
Replace with:
Replace

Languages & resources

Editing language:

Portal view

ENCODER WITH PLC SIEMENS S7-1200(TIA):



Siemens - C:\Users\magdy\Documents\Automation\upperegypt\upperegypt

Project Edit View Insert Online Options Tools Window Help

Totally Integrated Automation PORTAL

upperegypt ▸ PLC_1 [CPU 1211C AC/DC/Rly]

PLC_1 [CPU 1211C AC/DC/Rly]

General | IO tags | System constants | Texts

- General
- PROFINET interface [X1]
- DI 6/DQ 4
- AI 2
- High speed counters (HSC)
  - HSC1
  - HSC2
  - HSC3
  - HSC4
  - HSC5
  - HSC6
- Pulse generators (PTO/PWM)
- Startup
- Cycle
- Communication load
- System and clock memory
- Web server

High speed counters (HSC)

HSC1

General

Enable

☐ Enable this high speed counter

Project information

Name: HSC_1

Comment:

OK | Cancel

No 'properties' available.

No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties.

Portal view | Overview | Main

Project upperegypt opened.

ENCODER WITH PLC SIEMENS S7-1200(TIA):



Siemens - C:\Users\magdy\Documents\Automation\upperegypt\upperegypt

Project Edit View Insert Online Options Tools Window Help

PLC_1 [CPU 1211C AC/DC/Rly]

General | IO tags | System constants | Texts

- General
- PROFINET interface [X1]
- DI 6/DQ 4
- AI 2
- High speed counters (HSC)
  - HSC1
    - General
    - Function
    - Reset to initial values
    - Event configuration
    - Hardware inputs
    - I/O addresses
    - Hardware identifier
  - HSC2
  - HSC3
  - HSC4
  - HSC5
  - HSC6
- Pulse generators (PTO/PWM)
- Startup
- Cycle
- Communication load
- System and clock memory
- Web server
- User interface languages
- Time of day
- Protection
- Configuration control

> General

Enable

☑ Enable this high speed counter

Project information

Name: HSC_1

Comment:

OK | Cancel

Portal view | Overview | Main | Project upperegypt opened.

ENCODER WITH PLC SIEMENS S7-1200(TIA):



Siemens - C:\Users\magdy\Documents\Automation\upperegypt\upperegypt

Project Edit View Insert Online Options Tools Window Help

Totally Integrated Automation

PLC_1 [CPU 1211C AC/DC/Rly]

General | IO tags | System constants | Texts

- General
- PROFINET interface [X1]
- DI 6/DQ 4
- AI 2
- High speed counters (HSC)
  - HSC1
    - General
    - Function
    - Reset to initial values
    - Event configuration
    - Hardware inputs
    - I/O addresses
    - Hardware identifier
  - HSC2
  - HSC3
  - HSC4
  - HSC5
  - HSC6
- Pulse generators (PTO/PWM)
- Startup
- Cycle
- Communication load
- System and clock memory
- Web server
- User interface languages
- Time of day
- Protection
- Configuration control

> Function

Type of counting: Count

Operating phase: A/B counter

- Single phase
- Two phase
- A/B counter
- A/B counter fourfold

Counting direction is specified by:

Initial counting direction: Count up

Frequency measuring period: -/- sec

OK | Cancel

Portal view | Overview | Main | Project upperegypt opened.

ENCODER WITH PLC SIEMENS S7-1200(TIA):



Siemens - C:\Users\magdy\Documents\Automation\upperegypt\upperegypt

Project Edit View Insert Online Options Tools Window Help

PLC_1 [CPU 1211C AC/DC/Rly]

General | IO tags | System constants | Texts

- General
- PROFINET interface [X1]
- DI 6/DQ 4
- AI 2
- High speed counters (HSC)
  - HSC1
    - General
    - Function
    - Reset to initial values
    - Event configuration
    - Hardware inputs
    - I/O addresses
    - Hardware identifier
  - HSC2
  - HSC3
  - HSC4
  - HSC5
  - HSC6
- Pulse generators (PTO/PWM)
- Startup
- Cycle
- Communication load
- System and clock memory
- Web server
- User interface languages
- Time of day
- Protection
- Configuration control

> Reset to initial values

Reset values

Initial counter value: 0

Initial reference value: 0

Reset options

☑ Use external reset input

Reset signal level: Active high

OK | Cancel

Portal view | Overview | Main | Project upperegypt opened.

ENCODER WITH PLC SIEMENS S7-1200(TIA):



Siemens - C:\Users\magdy\Documents\Automation\upperegypt\upperegypt

Project Edit View Insert Online Options Tools Window Help

PLC_1 [CPU 1211C AC/DC/Rly]

General | IO tags | System constants | Texts

- General
- PROFINET interface [X1]
- DI 6/DQ 4
- AI 2
- High speed counters (HSC)
  - HSC1
    - General
    - Function
    - Reset to initial values
    - Event configuration
    - Hardware inputs
    - I/O addresses
    - Hardware identifier
  - HSC2
  - HSC3
  - HSC4
  - HSC5
  - HSC6
- Pulse generators (PTO/PWM)
- Startup
- Cycle
- Communication load
- System and clock memory
- Web server
- User interface languages
- Time of day
- Protection
- Configuration control

> Hardware inputs

Clock generator A input:	%I0.0	100 kHz on-board input
Clock generator B input:	%I0.1	100 kHz on-board input
Reset input:	%I0.3	100 kHz on-board input

OK | Cancel

Portal view | Overview | Main | Project upperegypt opened.

ENCODER WITH PLC SIEMENS S7-1200(TIA):



Siemens - C:\Users\magdy\Documents\Automation\upperegypt\upperegypt

Project Edit View Insert Online Options Tools Window Help

Totally Integrated Automation

PLC_1 [CPU 1211C AC/DC/Rly]

General | IO tags | System constants | Texts

- General
- PROFINET interface [X1]
- DI 6/DQ 4
- AI 2
- High speed counters (HSC)
  - HSC1
    - General
    - Function
    - Reset to initial values
    - Event configuration
    - Hardware inputs
    - I/O addresses
    - Hardware identifier
  - HSC2
  - HSC3
  - HSC4
  - HSC5
  - HSC6
- Pulse generators (PTO/PWM)
- Startup
- Cycle
- Communication load
- System and clock memory
- Web server
- User interface languages
- Time of day
- Protection
- Configuration control

> I/O addresses

Input addresses

Start address: 1000

End address: 1003

Organization block: --- (Automatic update)

Process image: Automatic update

ID1000

اسم المخزن الذي يحوى قيمة العداد

OK Cancel

Portal view | Overview | Main | Project upperegypt opened.

ENCODER WITH PLC SIEMENS S7-1200(TIA):



Siemens - C:\Users\magdy\Documents\Automation\upperegypt\upperegypt

Project Edit View Insert Online Options Tools Window Help

Save project Go online Go offline

Totally Integrated Automation PORTAL

Project tree

Devices

- upperegypt
  - Add new device
  - Devices & networks
  - PLC_1 [CPU 1211C AC/DC/Rly]
    - Device configuration
    - Online & diagnostics
    - Program blocks
    - Technology objects
    - External source files
    - PLC tags
    - PLC data types
    - Watch and force tables
    - Online backups
    - Traces
    - Device proxy data
    - Program info
    - Text lists
    - Local modules
  - Common data

Details view

Name

upperegypt ▸ PLC_1 [CPU 1211C AC/DC/Rly]

Topology view Network view Device view

PLC_1

103 102 101

Rack_

اضغط هنا ثم
قم بعمل
DOWNLOAD

PLC_1

CPU 1211C (6ES7 211-1xxx-0XB0)

100%

PLC_1 [CPU 1... Properties Info Diagnostics

General IO tags System constants Texts

- HSC1
  - General
  - Function
  - Reset to initial values
  - Event configuration
  - Hardware inputs
  - I/O addresses
  - Hardware identifier

I/O addresses

Input addresses

Start address: 100

End address: 100

Hardware cat...

Options

Catalog

<Search>

Filter

- CPU
- Signal boards
- Communications bo...
- Battery boards
- DI
- DQ
- DI/DQ
- Communications ...
- Technology modules

Information

Hardware catalog Online too... asks Libraries

Devices & networks

Portal view Overview Main PLC_1

Project upperegypt opened.

ENCODER WITH PLC SIEMENS S7-1200(TIA):



Siemens - C:\Users\magdy\Documents\Automation\upperegypt\upperegypt

Project Edit View Insert Online Options Tools Window Help

Save project Go online Go offline

Totally Integrated Automation PORTAL

Project tree

Devices

- PLC tags
- PLC data types
- Watch and force tables
  - Add new watch table
  - Force table
  - Watch table_1
- Online backups
- Traces
- Device proxy data
- Program info
- Text lists
- Local modules
- Common data
- Documentation settings
- Languages & resources
- Online access
- Card Reader/USB memory

Details view

Name

...CPU 1211C AC/DC/Rly] ▸ Watch and force tables ▸ Watch table_1

	i	Name	Address	Display format	Monitor value	Modi...
1			%ID1000	DEC		
2			<Add new>			

%ID1000 [Tag] Properties Info Diagnostics

General

General

General

Name:

Address: %ID1000

Display format: DEC

Testing

Options

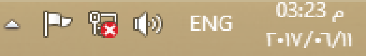
CPU operator panel

No online connection

Testing Tasks Libraries

PLC programming

Portal view Overview Main PLC_1 Watch table_1 Project upperegypt opened.



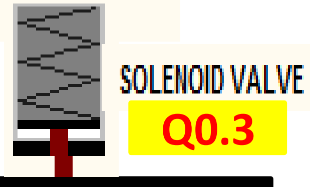
TANK CONTROL USING FLOWMETERS:



FLOWMETER 1
I0.2
PUMP 1
Q0.0
FLOWMETER 2
I0.3
PUMP 2
Q0.1
MIXER
Q0.2
HI-LEVEL
I0.5

START
(I0.0)

STOP
(I0.1)



FLOWMETER 3
I0.4

خزان توجد مضختان فى الأعلى يعملا معا عند الضغط على مفتاح التشغيل وتتوقف كل مضخة عندما يعطى حساس التدفق flow meter الخاص بها العدد المناسب من النبضات عندما يمر به السائل (هذا العدد يمكن تغييره من خلال شاشة مثلا) ثم يعمل الخلاط لمدة 5 ثوانى ثم يعمل صمام السحب الى أن يعطى الحساس I0.4 العدد المناسب من النبضات. فى حالة وجود أى خلل وتدفق السائل إلى مستوى أعلى من اللازم يفصل حساس المستوى I0.5 النظام

TANK CONTROL USING FLOWMETERS:



Network 1 Network Title

Network Comment

I0.0 I0.1 C2 <I +15 I0.5 / M0.0

M0.0

Network 2

M0.0 C0 <I +10 Q0.0

C1 <I +5 Q0.1

Network 3

I0.2 C0 CU CTU

C2 >=I +15 R

+2 PV

Network 4

I0.3 C1 CU CTU

C2 >=I +15 R

+2 PV

Network 5

M0.0 C0 >=I +10 C1 >=I +5 T5 / Q0.2

T5 IN TONR

+50 PT

T5 C2 <I +15 Q0.3

Network 6

I0.4 C2 CU CTU

T37 R

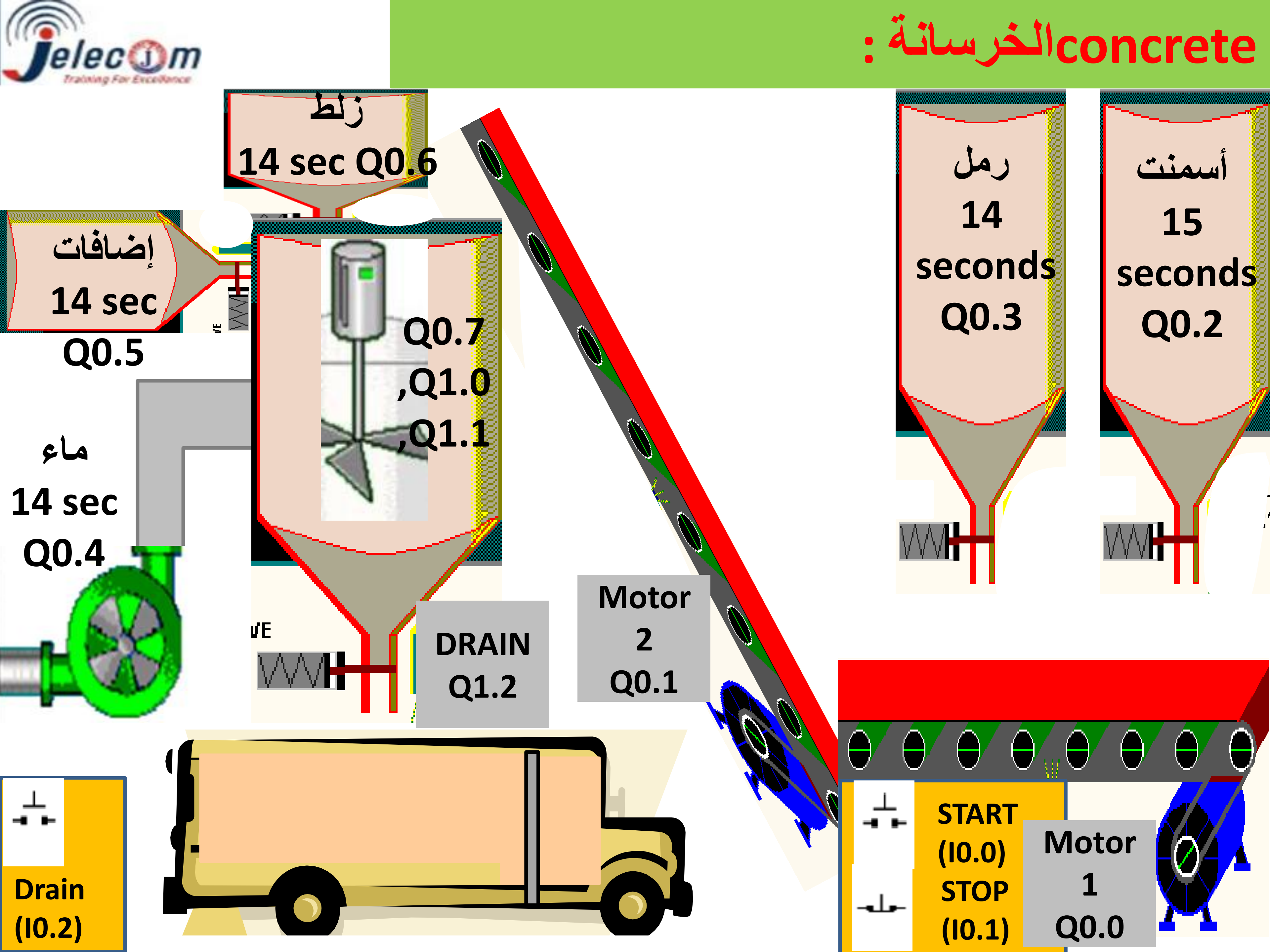
+2 PV

Network 7

C2 >=I +15 T5 R 1

T37 IN TON

+20 PT



Jelecom
Training For Excellence
الخرسانة concrete :
زلط
14 sec Q0.6
إضافات
14 sec
Q0.5
Q0.7
,Q1.0
,Q1.1
رمل
14
seconds
Q0.3
أسمنت
15
seconds
Q0.2
ماء
14 sec
Q0.4
DRAIN
Q1.2
Motor
2
Q0.1
Drain
(I0.2)
START
(I0.0)
STOP
(I0.1)
Motor
1
Q0.0

Jelecom
Training For Excellence

concreteالخرسانة :

مطلوب تجميع مكونات الخرسانة من (أسمنت – رمل – زلط – ماء – إضافات)
وسنستعيض عن الكميات بالتايمرات بدلا من الأوزان حاليا لمعرفة فكرة المشروع
وفى ال ADVANCED سنتعلم إدخال الأوزان (ANALOG) والخطوات كالتالى:

1- إنزال كميات الأسمنت والرمل.
2- حركة السيرين Q0.0 وQ0.1 لتحريك الكميات إلى الخزان الرئيسى
و إنزال الإضافات والزلط وعمل مضخة الماء لرفع الماء من أسفل لأعلى.
3- سحب الخليط من الخزان عن طريق مفتاح خارجى عند التأكد من وجود شاحنة.

لاحظ أن موتور الخلط يعمل منذ بداية التشغيل أتوماتيكيا ويفصل عند بدء السحب كل مرة ويبدأ بوضع ستار لمدة خمس ثوانى ثم يستمر على وضع الدلتا فى كل مرة تشغيل.
لاحظ أن بعد 20 مرة من تكرار هذه العملية أتوماتيكيا تتوقف كل الأحمال إلى أن يعاد ملئ الخزانات الرئيسية من جديد (بعد 20 مرة تكون الخزانات فارغة) فعليك بالضغط على مفتاح التشغيل من جديد.



concreteالخرسانة :



الخرسانةconcrete :

Network 1 Network Title

I0.0 I0.1 M0.0

M0.0

Network 2

M0.0 T11 Q1.2 mixer:Q0.7

T37 Q1.1 star:Q1.0

T37 Q1.0 delta:Q1.1

T37

IN TONR

50 PT ??? ms



الخرسانةconcrete :

Network 3

M0.0 — T5 (/) — cementQ0.2 ( )

T5: IN TONR, 150 PT, 100 ms

T6 (/) — sand:Q0.3 ( )

T6: IN TONR, 140 PT, 100 ms

Network 4

M0.0 — T5 — T6 — T10 (/) — belt1:Q0.0 ( )

belt2:Q0.1 ( )

T7 (/) — water:Q0.4 ( )

T8 (/) — heavy:Q0.5 ( )

T9 (/) — additions:Q0.6 ( )

T7: IN TONR, 140 PT, 100 ms

T8: IN TONR, 140 PT, 100 ms

T9: IN TONR, 140 PT, 100 ms

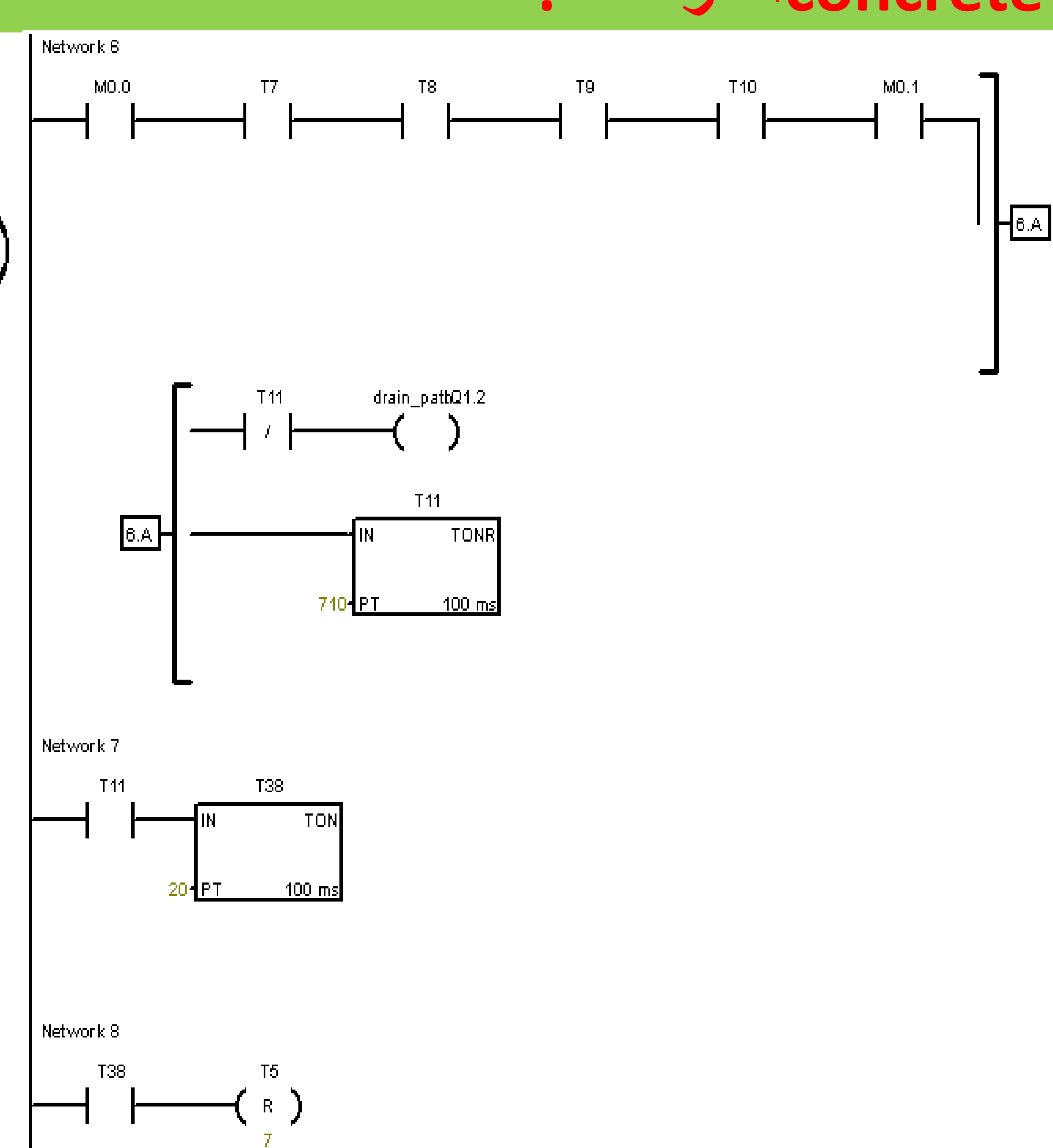
T10: IN TONR, 290 PT, 100 ms

الخرسانة concrete :

Network 5

drain:I0.2 T11 off:I0.1 M0.1

M0.1





concreteالخرسانة :

Network 9

T11

C0

CU CTU

I0.0 C0

R

20 PV

Network 10

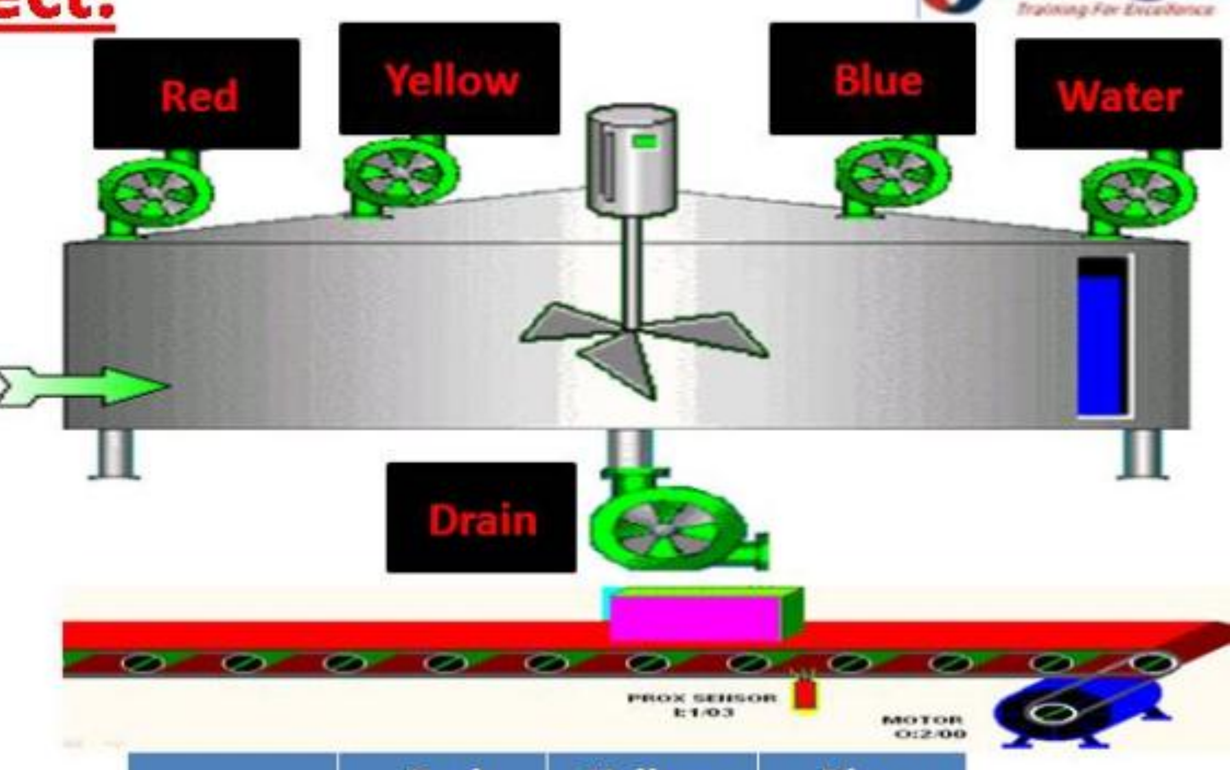
C0 M0.0

R

1

Color mixing project:





	Red	Yellow	Blue
Red	100%	0%	0%
Yellow	0%	100%	0%
Blue	0%	0%	100%
Orange	60%	40%	0%
Green	0%	30%	70%
violet	80%	0%	20%

COLOR MIXING PROJECT:



i0.0 on
i0.1 off
i0.2 red
i0.3 yellow
i0.4 blue
i0.5 orange
i0.6 green
i0.7 violet
i1.0 level sensor
q0.0 red pump
q0.1 yellow pump
q0.2 blue pump
q0.3 mixer
q0.4 drain
q0.6 water pump

-- قبل البدء فى تنفيذ أى لون تعمل مضخة المياه بمصاحبة الخلاط لمدة 10 ثوانى ثم تعمل مضخة السحب إلى أن يفرغ الخزان.

-- الخلاط يعمل مع الألوان المختلطة فقط بحيث يبدأ عمله مع اللون الأطول زمنا ويستمر فى عمله بعد اللون الأطول زمنا لمدة 10 ثوانى ثم تعمل مضخة السحب إلى ان يفرغ الخزان.

-- طلب أى لون لا ينفذ إلا بعد الإنتهاء من اللون الحالى.

Additional circuit دائرة اضافية

-- Color Mixing:



Network 1 Network Title

I0.0 I0.1 M0.0

M0.0

Network 2

I0.2 M0.3 M0.4 M0.5 M0.6 M0.7 M0.2

M0.2

Network 3

I0.3 M0.2 M0.4 M0.5 M0.6 M0.7 M0.3

M0.3

Network 4

I0.4 M0.2 M0.3 M0.5 M0.6 M0.7 M0.4

M0.4

Network 5

I0.5 M0.2 M0.3 M0.4 M0.6 M0.7 M0.5

M0.5

Network 6

I0.6 M0.2 M0.3 M0.4 M0.5 M0.7 M0.6

M0.6

-- Color Mixing:



Network 7

I0.7 — M0.2 — M0.3 — M0.4 — M0.5 — M0.6 — M0.7

M0.7

Network 8

M0.0 — M0.2 — T5 — Q0.6

mixer

M0.3

M0.4 — T5 — IN TONR

100 — PT 100 ms

M0.5

M0.6

M0.7

Network 9

M0.0 — T5 — M1.0 — I1.0 — drain1

Network 10

I1.0 — N — M1.0 (S)

1

Network 11

M0.0 — M1.0 — M0.2 — T6 — red1

T6 — IN TONR

100 — PT 100 ms

Network 12

M0.0 — M1.0 — M0.3 — T7 — yellow1

T7 — IN TONR

100 — PT 100 ms

Network 13

M0.0 — M1.0 — M0.4 — T8 — blue1

T8 — IN TONR

100 — PT 100 ms

Network 14

M0.0 — M1.0 — M0.5 — T9 — red2

T10 — yellow2

T9 — IN TONR

60 — PT 100 ms

T10 — IN TONR

40 — PT 100 ms

-- Color Mixing:



Network 15

M0.0 M1.0 M0.6 T11 (/) yellow3
T12 (/) blue2
T11 IN TONR 30-PT 100 ms
T12 IN TONR 70-PT 100 ms

Network 16

M0.0 M1.0 M0.7 T13 (/) red3
T14 (/) blue3
T13 IN TONR 80-PT 100 ms
T14 IN TONR 20-PT 100 ms

Network 17

M1.1 Q0.0
M1.2
M1.3

Network 18

M1.4 Q0.1
M1.5
M1.6

Network 19

M1.7 Q0.2
M2.0
M2.1

Network 20

M0.0 M1.2 mixer2
M2.0
M1.3



-- Color Mixing:

Network 21

M0.0 T9 T15 mixer3

T12 T15 IN TONR

T13 100 PT 100 ms

Network 22

M2.2 Q0.3

M2.3

M2.4

Network 23

M2.5 Q0.4

M2.6

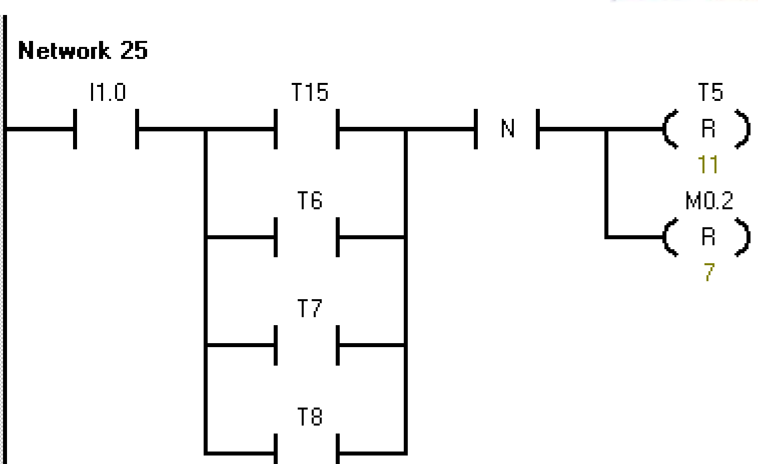
Network 24

M0.0 T15 I1.0 drain2

T6

T7

T8



AUTOMATION COMPANIES IN EGYPT:



Egypt Smart Home

Egypt Smart Home

٢,٣ ★★★★★ 3 تعليقات

خدمة أمنية في مدينة الشروق، مصر

الاتصال بـ | اتجاهات السير | مشاركة | صفحة ويب

181 شارع الشباب - أسكان الشباب 100 متر - بجوار مدرسة الفيوتشر، محافظة القاهرة 11837

مفتوح اليوم ١٠ص–١٠م

0115 000 4344

العاشر من رمضان

شركه البنا للدواجن

Map data ©2017 Google, ORION-ME

سمارت أوتوميشن - مصر

الاتصال بـ | مشاركة

العاشر من رمضان، أكياد القبلية، مركز فاقوس، الشرقية

015 374356

AUTOMATION COMPANIES IN EGYPT:



MISC

٥,٠ ★★★★★ تعليقان (2)

مورد معدات صناعية في مصر

الاتصال بـ | اتجاهات السير | مشاركة | صفحة ويب

6 سيد زكريا، شيراتون المطار، قسم النزهة، محافظة القاهرة 11361

مفتوح اليوم ٩ص–٥م

02 22680994

اسيك للتحكم الالى

٣,٦ ★★★★ 7 تعليقات

مهندس كهرباء في مصر

الاتصال بـ | اتجاهات السير | مشاركة | صفحة ويب

6 ش 308، البساتين الشرقية، المعادي، محافظة القاهرة

مفتوح اليوم ٨ص–٥م

02 27042601

AUTOMATION COMPANIES IN EGYPT:



الكترو هيدروليك اوتوميشن - اى اتش اية
٣,٠ ★★★★★ تعليق واحد

الاتصال بـ
مشاركة
صفحة ويب

74 ahmed essmat st.، الزهراء ومساكن الحلمية، قسم عين شمس، محافظة القاهرة

02 24941760

Map data ©2017 Google, ORION-ME

هاك اوتوميشن

الاتصال بـ
اتجاهات السير
مشاركة

58 متفرع من ش مصدق، الدقي، الجيزة

02 37612747

DISTRIBUTION COMPANIES IN EGYPT:



	B	C	D	E	F	G
1	اسم المجموعة او المكتب	عدد الفروع	الفروع	العنوان	التليفونات	الفاكس
2			المعادي	مبنى رقم 2075 و 2078 مدينه المعراج - المعادى	02-25204500 - 02-25204501 - 02-252045	02-25204505
3	المجموعة الاستشارية شاكر	3	المهندسين	45 شارع محمد حسن حلمي - المهندسين	02-33454113 - 02-33454972	
4			بولاق الدكرور	شارع علي ابو عيطه - بولاق الدكرور	02-33287651	
5	مكتب المهندس الاستشاري صبور و شركاه	1	الدقي	20 شارع لطفي حسونه - الدقي	02-37613140	
6			مدينة نصر	عمارة 2 - بلوك 10 حي السفارات , مدينة نصر	02-22744740	02-22744748
7	ECG - جماعة المهندسين الاستشاريين	3	الاسكندرية	16 ش ابراهيم نصير لوران الاسكندرية	03-5820322	
8			القرية الذكية	طريق الاسكندرية القاهرة الصحراوي الاسكندرية	02-22744740	
9	ACE Consulting Engineers	2	Dokki	5 El-Gomhouria El-Mottaheda Square Dokki, Cairo	+202 33 37 71 20, 33 36 17 47 / 78 39	202 37 49 82 54
10	Moharram.Bakhoum		Cairo Downtown	2 Champollion Street- Cairo Downtown	202 25 74 48 76 / 11 17, 25 75 36 10	+202 25 78 44 58
11	المهندسون الاستشاريون العرب	1	المهندسين	3 ش عبد القوى احمد-المهندسين الجيزة	02-33020841	
12	المجموعة الاستشارية للعمارة وتنمية البيئة	1		6 شارع المتحف الزراعي – دقي – القاهرة – مصر	+202 7487005 & +202 3380538	+202 7487005
13	مجموعه ابو الخير الاستشاريه - دكتور م احمد ابو الخير بدر	1		98 شارع التحرير - الدقي - القاهره - مصر	02-33388748	
14	مكتب هندسي استشاري محمود خليل المشنب	1		16 شارع منشيه الطيران - مصر الجديده - القاهره - مصر	02-24140925	
15	المكتب العلمي للهندسة الكهروميكانيكية	1		ش الشيخ احمد ابراهيم - النزهة - الدور 3 شقة 3 الالف مسكن	02-26351176, 0100-1112131	
16	المحمودية العامة للمقاولات والاستثمار العقاري	1		1 ش عصام الدالي - الدقي, الجيزة	02-33363691	02-33362413
17	مختار ابراهيم للمقاولات	1		199 امتداد شارع 26 يوليو / العجوزة / القاهرة		
18	المقاولون العرب | المركز الرئيسي			34 ش عدلي - القاهرة	02 23959500- 02 23959522	02 23937674
19	المقاولون العرب / الإدارة العامة للإستشارات الهندسية	3		26 ش الجمهورية القاهرة	002 02 2390 35 50	002 02 2390 39 99
20	المقاولون العرب /قطاع الإحتياجات والعطاءات			11 شارع دكتور يسري جوهر - مدينة نصر	002 02 2403 89 84	002 02 2262 15 84
21			Sheikh Zayed	Km 38 Cairo-Alexandria Desert Road,Sheikh Zayed City	02 3857 0061-3	02 3857 0060
22	SODIC	3	Zamalek	Abou El Feda St.,Abou El FedaCommercial Tower, Zamalek 3	02 2737 6010/2737 6019	
23			:Heliopolis	El Thawra St., Heliopolis 46	02 2290 3491/2290 3597/2290 4393	
24	Orascom Hotels and Development	2	Corniche El Nil	Nile City Towers, South Tower, 9th Floor 2005 A Corniche El Nil	02 2461 8999	02 2461 9977
25	Orascom Construction Industries		Corniche El Nil	Nile City Towers,Corniche El Nil	0 2 2461 1111	
26	وادي النيل للمقاولات والاستثمارات العقارية			7 طريق النصر المنطقة السادسة , مدينة نصر, القاهرة	16640, 02-26900893, 02-26900901, 02-26900903	
27	الشركة الوطنية للمقاولات العامة والتوريدات		مدينة نصر	14 ش محمود طلعت من الطيران	22611596	22608230
28	Egyptian For Coastal Construction - ECC		,Heliopolis	65 El Maqrizy St.Roxy, Heliopolis, Cairo	02-22591985	
29	ابناء حسن علام	1	Sheraton Heliopolis	Yehia Zakaria St., Industrial Zone - lot 5, Sheraton Heliopolis Housing, Cairo, Egypt	02 22666 917	02 22666 920
30	الاسكندرية للانشاءات - طلعت مصطفى	2	المركز الرئيسي- الأسكندرية	محرم بك- ميدان الطريق الصحراوي- ص.ب. 754- الأسكندرية	3600267 (203) - 3601376 (203)	3600278 (203)
31			فرع القاهرة	34، 36 ش مصدق - الدقي – جيزة ص.ب. رقم 12311	33315600 (202) - 33312000 (202)	33360437 (202) - 3336

DISTRIBUTION COMPANIES IN EGYPT:

Jelecom Training For Excellence

	B	C	D	E	F	G
1	اسم المجموعة او المكتب	عدد الفروع	الفروع	العنوان	التليفونات	الفاكس
32	المجموعة الاستشارية للدراسات المتكاملة وادارة المشروعات WECG,	1		ش الجزائر متفرع من ش جامعة الدول العربية المهندسين الجيزة	0122-9500411, 02-33038810, 02-33038820, 02-33038830	02-33038850
33	مركز تطوير البناء	1		38 ش احمد الصاوى من مكرم عبيد مدينة نصر, القاهرة	02-22757438, 02-26703241, 02-267032	02-22758797
34	ارت فيجين معماريون ومهندسون	1		عمارة الفيروز - عمارات رابعة الاستثمارى - طريق النصر مدينة نصر, القاهرة	0114-0477744, 02-24170251	02-24170251
35	مكتب التصميمات الميكانيكية الكهربائية (MED)	1		26 ش سوريا المهندسين, الجيزة	02-33386292, 02-37489121	02-33386292
36	اريا للعمارة والتصميم الداخلي	1		عمارات الفسطاط - ش الفسطاط شقة 34 - امام متحف الحضارة الفسطاط, القاهرة	0122-3976791	
37	الاستشاريون العرب	1		9 ش عدلي وسط البلد, القاهرة	02-23960914, 02-23960915	
38	الخبراء الفنيون للاستشارات الهندسية وادارة المشاريع	1		عماد الدين كامل متفرع من ش عباس العقاد المنطقة الاولى, مدينة نصر, القاهرة	02-24050709	02-24023999
39	المجموعة المتحدة للاستشارات الهندسية	1		15 ش عبد الخالق ثروت وسط البلد القاهرة	0122-2315803	
40	ارجي جروب للهندسة والاستشارات	1		461 ش سكة الوايلي تقسيم الجمعية حدائق القبة, القاهرة	26015207	02-24536676
41	تكنو كونسلت - الخدمات الهندسية والاستشارية	1		14 أ ش كليوباترا - الكوربة مصر الجديدة, القاهرة	0100-2118550, 02-24180700	02-24187875
42	GAAFAR GROUP CONSULTANTS			1 شارع الشيخ محمد رفعت - ميدان المحكمة - مصر الجديدة - 11351 القاهرة	26382713	26426284
43	توتاليتي - الخبرات الدولية المتكاملة			79 ط طريق النصر مدخل 2 - بجوار طيبة مول ، مدينة نصر	24010245	
44	جدوى للاستشارات			51 ش لبنان المهندسين الجيزة	02-33472444	
45	جلوبال للاستشارات الاستراتيجية			13 ش ابراهيم نجيب جاردن سيتي القاهرة	02-27926285, 02-27926286	
46	جودة للاستشارات الهندسية			73 ش عمر بن الخطاب مصر الجديدة, القاهرة	0106-3179966, 0106-8800141, 02-24173486,	02-24186445
47	حمزة وشركاه			5 ش ابن مروان الدقي, الجيزة	02-37607238	
48	خلد عويضة ومشاركوه للاستشارات الهندسية			84 ش الميرغني كلية البنات, مصر الجديدة, القاهرة	02-24140071	
49	دار الاستشارات الهندسية - د. م. احمد رأفت ابو طبيخ			71 - تعاونيات سموحة سموحة, الاسكندرية	03-4252497, 03-6444539	
50	دار الخليج للاستشارات الهندسية			24 ش فوزي المطيعي ميدان الاسماعلية, مصر الجديدة القاهرة	03-4252497	
51	فاين تاتش للاستشارات الهندسية	2	القاهرة الجديدة	التجمع الخامس القاهرة الجديدة القاهرة	02-26171945	
52			المقطم	ش 9 المقطم القاهرة	02-25084057	



THANK YOU

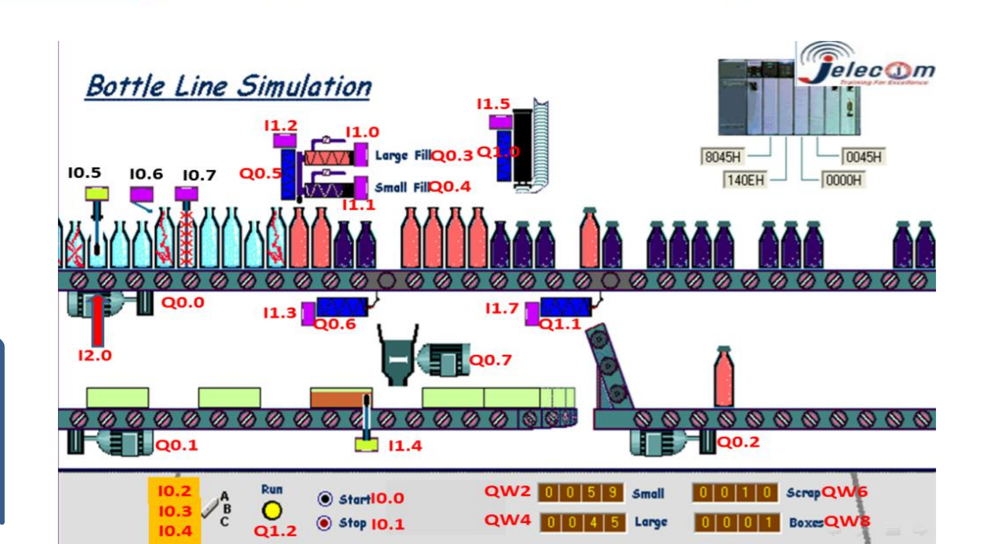
Eng./ Mohammed Magdy



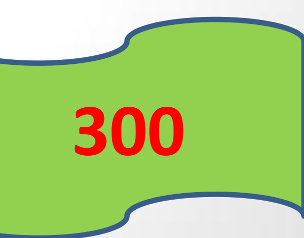
Programmable Logic Controller (PLC LEVEL 2)

Presented by: Eng./Mohammed Magdy























September 29, 2016
Ref. No.: OB-160929-E04

CERTIFICATION

We, LSIS Co., Ltd.,
as the manufacturer of Electric and Automation Equipment with our main office located at LS Tower 1026-6, Hogye-Dong, Dongan-Gu, Anyang-Si, Gyeonggi-Do,KOREA, do hereby appoint

MR. MOHAMMED MAGDY EBRAHIM MOHAMED

From JELECOM, EGYPT

has successfully passed the training courses for
LSIS Automation & Drive products
and got this certificate as

Certified on behalf of the Company



J. K. Koo / Chairman

LSIS Co.,Ltd

LSIS Training Center
68, Wolmyeong-ro 201beon-gil, Heungdeok-gu,
Cheongju-si, Choong-buk, 28437, Korea













- **Automatic control field:**



1- classic control.

2- PLC level1.

3- PLC level2.

4- SCADA.

1- Traffic lights for two-direction way:

2- Garage Door control:

3- production line (advanced):

4- Mixing project (advanced):

RTU

MTU

Analog Alarm

Digital screen

Digital Alarm

CONTROL PANNEL

ACK

ACK ALL

Exit

PLC COMPANIES:

Jelecom
Training For Excellence

ASIA

-- LS(LG AS PREVIOUS)
-- FATEK
-- DELTA
-- VERSAMAX

-- MASTERK
-- XGT-SERIES
-- GLOFA

JAPAN

-- OMRON
-- MITSUBISHI
-- TOSHIBA

USA

-- ALLEN BRADELY

EUROPE

-- SIEMENS
-- SCHNIDER
-- ABB

-- S5
-- LOGO
-- S7-200 → MICROWIN
-- S7-300 → SIMATIC MANAGER
S7-400 → SIMATIC MANAGER
-- S7-1200 → TIA
-- S7-1500 → TIA

:PLC LEVEL 2 (SIEMENS S7-300)



١- التعرف على محتويات PLC SIEMENS S7-300 وكيفية توصيل المفاتيح والحساسات والأحمال على الوحدة وتصميم البرامج المناسبة لها.

٢- التعرف على المساحات التخزينية الموجودة فى PLC .

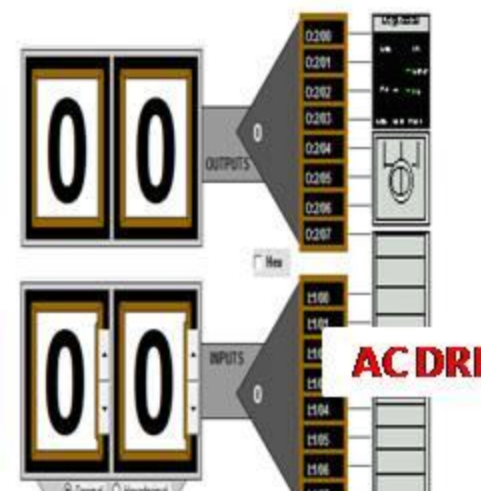
٣- التعرف على أنواع التيمرات والعدادات والأوامر المختلفة .

٤- عمل نظام مغلق (OB & FC & FB & DB) .

٥- التعرف على كيفية عمل العمليات الحسابية وأوامر (MOVE & SHIFT & ROTATE)

٦- مشروع مخزن آلى متعدد الوظائف (تخزين بالترتيب /تخزين عشوائى/الحصول على منتج).

٧- مشروع خط إنتاج متطور مكون من ٤ مراحل (تعبئة / تصنيف المكسور / تغطية / تصنيف الكبير والصغير) .



٨ – التحكم فى سرعة محرك ثلاثى الأطوار PLC analog card

٩- عمل دوائر عملية على وحدة PLC SIEMENS S7-300 & S7-1200 :

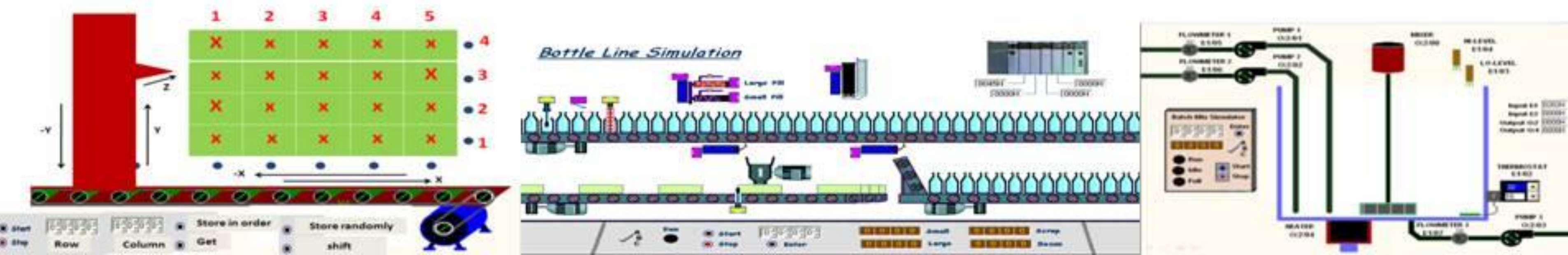
– عكس حركة موتور باستخدام تيمر لمنع عكس الحركة المباشر للحفاظ على سلامة محور الدوران .

– إيقاف الموتور بعد عدد ساعات متقطعة / متواصلة من العمل لعمل الصيانة اللازمة.

– توصيل الوحدة مع محرك ثلاثى الأطوار و AC DRIVE SIEMENS MICROMASTER 420

– توصيل شاشة HMI SIEMENS TD200

١٠- عمل دائرة مصعدين مرتبطين معا وكل مصعد يتحرك خلال اربعة طوابق وكل مصعد به مفاتيح للطلبات الداخلية ويوجد مفتاح فى كل طابق لطلب الكابينة الاقرب.



DATA STORAGE:



Data type	Data storage area type
Bool →	Bit
Byte →	Byte
Integer →	Word
Double integer →	Double word
Real →	Double word

MEMORY AREAS IN PLC SIEMENS S7-200:





M - AREA



Accessed by:	Memory Type	CPU 221	CPU 222	CPU 224	CPU 226
Bit (*Byte.bit*)	V	0.0 - 2047.7	0.0 - 2047.7	0.0 - 5119.7 V 1.22 0.0 - 8191.7 V 2.00 0.0 - 10239.7 XP	0.0 - 5119.7 V 1.23 0.0 - 10239.7 V 2.00
	I	0.0 - 15.7	0.0 - 15.7	0.0 - 15.7	0.0 - 15.7
	Q	0.0 - 15.7	0.0 - 15.7	0.0 - 15.7	0.0 - 15.7
	M	0.0 - 31.7	0.0 - 31.7	0.0 - 31.7	0.0 - 31.7

PLC SIEMENS S7-200 MEMORY:



1- BIT:

[Memory Area] [Byte] .[Bit] EX.: M0.0 / Q0.0 / I0.0 / V0.0

2-Byte: = 8 bits

[Memory Area] B [Byte order]

EX.: MB0 / QB0 / IB0 / VB0

MB0

7	6	5	4	3	2	1	0
0	0	0	0	0	1	0	1

Range:

Unsigned	0 → 255
Signed	-128 →+127

PLC SIEMENS S7-200 MEMORY:



3- Word: = 2BYTES =16 BITS

[Memory Area] W [Word order]

EX.: MW0 / QW0 / IW0 / VW0

MW0

MB0	MB1

I 3 . 4
- Bit of byte, or bit number: bit 4 of 8 (0 to 7)
- Period separates the byte address from the bit number
- Byte address: byte 3 (the fourth byte)
- Area identifier

Process-image Input (I) Memory Area

7 6 5 4 3 2 1 0

Byte 0, Byte 1, Byte 2, Byte 3, Byte 4, Byte 5

Range:

Unsigned	0 → 65535
Signed	- 32768 → +32767

MW0 —+2→ MW2 —+2→ MW4

MW1 —+2→ MW3 —+2→ MW5

V B 100
- Byte address
- Access to a byte size
- Area identifier

V W 100
- Byte address
- Access to a word size
- Area identifier

V D 100
- Byte address
- Access to a double word size
- Area identifier

VB100: MSB [7 VB100 0] LSB

MSB = most significant bit
LSB = least significant bit

VW100: Most significant byte MSB [15 VB100 8] Least significant byte [7 VB101 0] LSB

VD100: Most significant byte MSB [31 VB100 24] [23 VB101 16] [15 VB102 8] Least significant byte [7 VB103 0] LSB

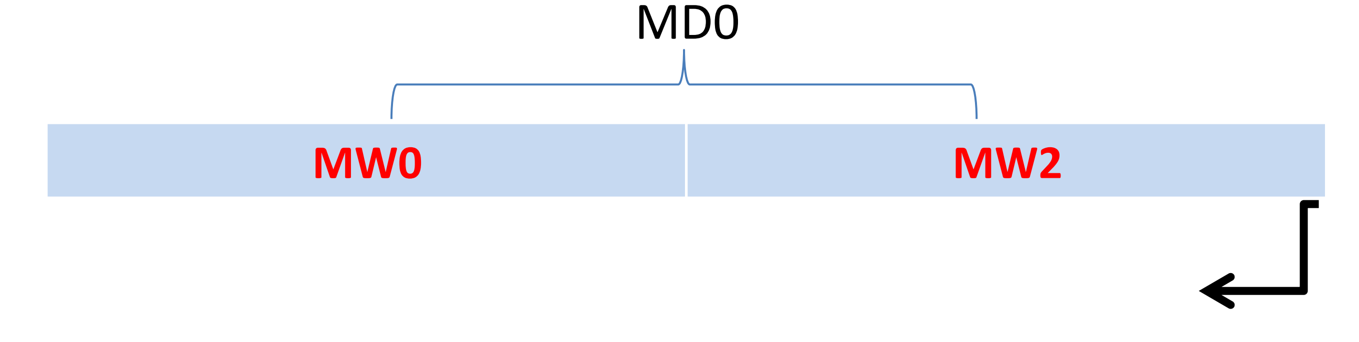
PLC SIEMENS S7-200 MEMORY:



4- Double Word: = 2 WORDS = 4 BYTES = 32 BITS

[Memory Area] D [Double Word order]

EX.: MD0 / QD0 / ID0 / VD0



Range:

Unsigned	0 → 4294967295
Signed	- 2147483648→+2147483647

MD0 +4→ MD4 +4→ MD8

MD1 +4→ MD5 +4→ MD9

Ranges of Constant Number Values

	Unsigned Integer Range		Signed Integer Range	
Data Size:	**Decimal:**	**Hexadecimal:**	**Decimal:**	**Hexadecimal:**
B (Byte)	0 to 255	0 to FF	-128 to +127	80 to 7F
W (Word)	0 to 65535	0 to FFFF	-32768 to +32767	8000 to 7FFF
D (Double Word)	0 to 4294967295	0 to FFFF FFFF	-2147483648 to +2147483647	8000 0000 to 7FFF FFFF

Data Size:	**Decimal Real (Positive Range)**	**Decimal Real (Negative Range)**
D (Double Word)	+1.175495E-38 to +3.402823E+38	-1.175495E-38 to -3.402823E+38

PLC S7-300 CPU 313C MEMORY AREAS:



I	Q	M	DB	T	C	PI	PQ	……

- I → DIGITAL INPUT
- Q → DIGITAL OUTPUT
- M → MARKER
- DB → DATA BLOCK
- T → TIMERS
- C → COUNTERS
- PI → ANALOG INPUT
- PQ → ANALOG OUTPUT

PLC SIEMENS S7-300 CONNECTIONS:



PLC SIEMENS S7-300 CONNECTIONS:



PLC SIEMENS S7-300 CATALOGUE:



Terminal Assignment and Block Diagram of the SM 321; DI 16 × 24 VDC

photo transistor

voltage divider

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7

2 3 4 5 6 7 8 9

12 13 14 15 16 17 18 19

20 M

24 V

M

Backplane bus interface module

Channel number

Status LEDs – green

Figure 3-3 Module View and Block Diagram of Digital Input Module SM 321; DI 16 × 24 VDC

Terminal Assignment and Block Diagram of the SM 322; DO 16 × 24 VDC/0.5 A

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7

1 1 L+

2 3 4 5 6 7 8 9

10 1M

24 V

M

Backplane bus interface

11 2 L+

12 13 14 15 16 17 18 19

20 2M

24 V

M

Channel number

Status LEDs – green

Figure 3-13 Module View and Block Diagram of the SM 322; DO 16 x 24 VDC/0.5 A

PLC SIEMENS S7-300 CATALOGUE:



SIMATIC S7-300
Central processing units

Standard CPUs

Technical specifications (continued)

	6ES7 312-1AE14-0AB0	6ES7 314-1AG14-0AB0	6ES7 315-2AH14-0AB0	6ES7 315-2EH14-0AB0	6ES7 317-2EK14-0AB0
Product-type designation	CPU 312	CPU 314	CPU 315-2 DP	CPU 315-2 PN/DP	CPU 317-2 PN/DP
Work memory					
• Size of retentive memory for retentive data blocks	32 Kibyte	64 Kibyte	128 Kibyte	128 Kibyte	256 Kibyte
Load memory					
• pluggable (MMC)	Yes	Yes	Yes	Yes	Yes
• pluggable (MMC), max.	8 Mbyte	8 Mbyte	8 Mbyte	8 Mbyte	8 Mbyte
Backup					
• present	Yes; guaranteed by MMC (maintenance-free)	Yes; guaranteed by MMC (maintenance-free)	Yes; guaranteed by MMC (maintenance-free)	Yes; guaranteed by MMC (maintenance-free)	Yes; guaranteed by MMC (maintenance-free)
• without battery	Yes; Program and data	Yes; Program and data	Yes; Program and data	Yes; Program and data	Yes; Program and data
CPU/ blocks					
DB					
• Number, max.	1 024; Number range: 1 to 16000	1 024; Number range: 1 to 16000	1 024; Number range: 1 to 16000	1 024; Number range: 1 to 16000	2 048; Number range: 1 to 16000
• Size, max.	32 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte
FB					
• Number, max.	1 024; Number range: 0 to 7999	1 024; Number range: 0 to 7999	1 024; Number range: 0 to 7999	1 024; Number range: 0 to 7999	2 048; Number range: 0 to 7999
• Size, max.	32 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte
FC					
• Number, max.	1 024; Number range: 0 to 7999	1 024; Number range: 0 to 7999	1 024; Number range: 0 to 7999	1 024; Number range: 0 to 7999	2 048; Number range: 0 to 7999
• Size, max.	32 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte

PLC SIEMENS S7-300 CATALOGUE:

Times/counters and their retentivity					
S7 counter					
• Number	256	256	256	256	512
• Retentivity					
- can be set	Yes	Yes	Yes	Yes	Yes
- lower limit	0	0	0	0	0
- upper limit	255	255	255	255	511
• Counting range					
- can be set	Yes	Yes	Yes	Yes	Yes
- lower limit	0	0	0	0	0
- upper limit	999	999	999	999	999
IEC counter					
• present	Yes	Yes	Yes	Yes	Yes
• Type	SFB	SFB	SFB	SFB	SFB

PLC SIEMENS S7-300 CATALOGUE:



Technical specifications (continued)

	6ES7 312-1AE14-0AB0	6ES7 314-1AG14-0AB0	6ES7 315-2AH14-0AB0	6ES7 315-2EH14-0AB0	6ES7 317-2EK14-0AB0
Product-type designation	CPU 312	CPU 314	CPU 315-2 DP	CPU 315-2 PN/DP	CPU 317-2 PN/DP
S7 times					
• Number	256	256	256	256	512
• Retentivity					
- can be set	Yes	Yes	Yes	Yes	Yes
- lower limit	0	0	0	0	0
- upper limit	255	255	255	255	511
- preset	no retentivity	no retentivity	no retentivity	no retentivity	no retentivity
• Time range					
- lower limit	10 ms	10 ms	10 ms	10 ms	10 ms
- upper limit	9 990 s	9 990 s	9 990 s	9 990 s	9 990 s
IEC timer					
• present	Yes	Yes	Yes	Yes	Yes
• Type	SFB	SFB	SFB	SFB	SFB
Data areas and their retentivity					
Flag					
• Number, max.	256 byte	256 byte	2 048 byte	2 048 byte	4 096 byte
• Retentivity available	Yes; MB 0 to MB 255	Yes; MB 0 to MB 255	Yes; MB 0 to MB 2047	Yes; MB 0 to MB 2047	Yes; MB 0 to MB 4095
• Number of clock memories	8; 1 memory byte	8; 1 memory byte	8; 1 memory byte	8; 1 memory byte	8; 1 memory byte
Data blocks					
• Number, max.	1 024; Number range: 1 to 16000	1 024; Number range: 1 to 16000	1 024; Number range: 1 to 16000	1 024; Number range: 1 to 16000	2 048; Number range: 1 to 16000
• Size, max.	32 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte	64 Kibyte
• Retentivity adjustable	Yes; via non-retain property on DB	Yes; via non-retain property on DB	Yes; via non-retain property on DB	Yes; via non-retain property on DB	Yes; via non-retain property on DB

PLC SIEMENS S7-300 CATALOGUE:

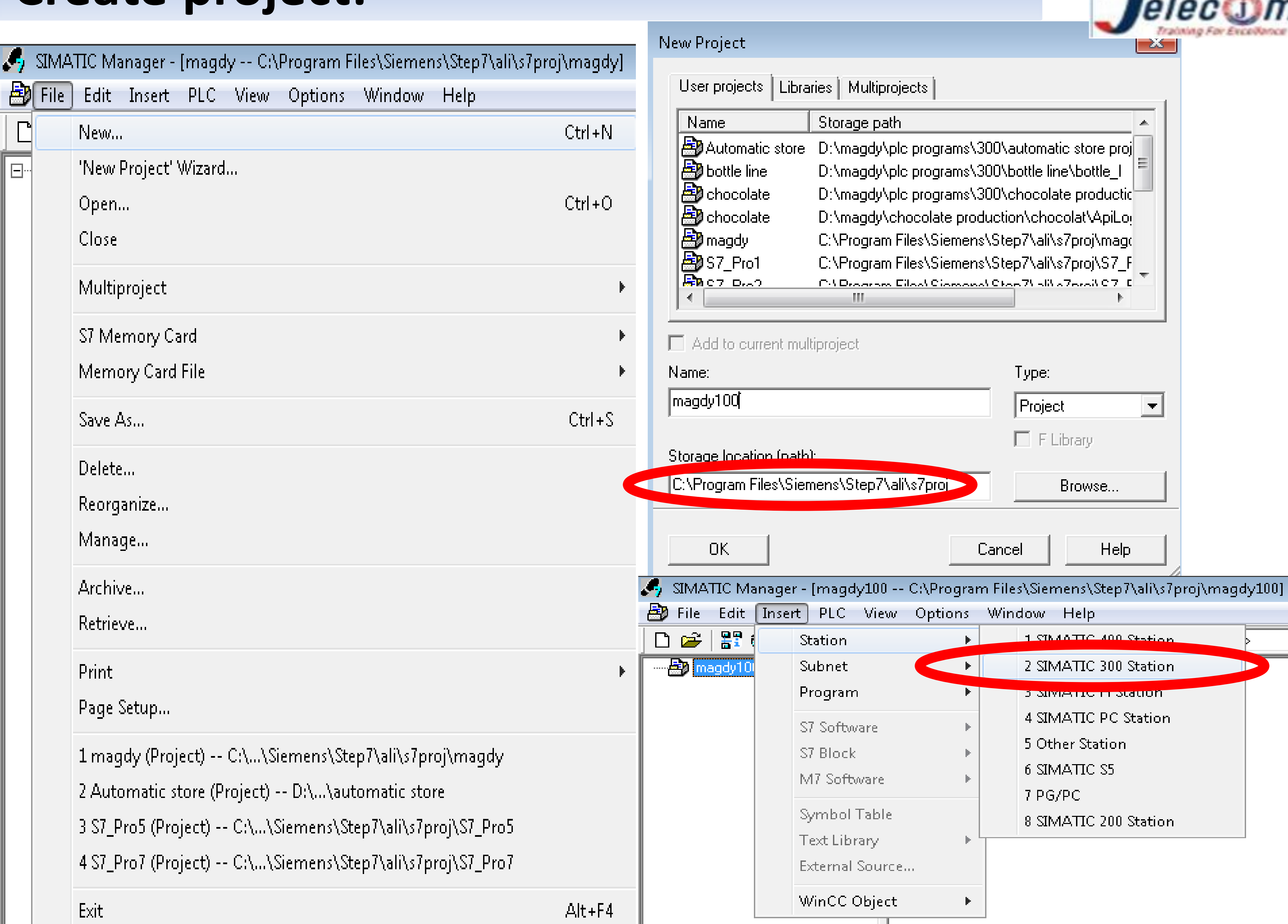
Jelecom Training For Excellence

Digital channels					
• Inputs	256	1 024	16 384	16 384	65 536
• Outputs	256	1 024	16 384	16 384	65 536
• Inputs, of which central	256	1 024	1 024	1 024	1 024
• Outputs, of which central	256	1 024	1 024	1 024	1 024

Technical specifications (continued)

	6ES7 312-1AE14-0AB0	6ES7 314-1AG14-0AB0	6ES7 315-2AH14-0AB0	6ES7 315-2EH14-0AB0	6ES7 317-2EK14-0AB0
Product-type designation	CPU 312	CPU 314	CPU 315-2 DP	CPU 315-2 PN/DP	CPU 317-2 PN/DP
Analog channels					
• Inputs	64	256	1 024	1 024	4 096
• Outputs	64	256	1 024	1 024	4 096
• Inputs, of which central	64	256	256	256	256
• Outputs, of which central	64	256	256	256	256

Create project:



Create project:

SIMATIC Manager - [magdy100 -- C:\Program Files\Siemens\Step7\ali\s7proj\magdy100]

File Edit Insert PLC View Options Window Help

< No Filter >

magdy100
SIMATIC 300(1)

Hardware

SIMATIC Station

Simulation (PLCSIM program)

HW Config - [SIMATIC 300(1) (Configuration) -- magdy100]

Station Edit Insert PLC View Options Window Help

(0) UR

1
2
3
4
5
6
7
8
9
10
11

Download H/W configurations to module

Save& compile

Download program to PLC

Find:

Profile: Standard

PROFIBUS DP
PROFIBUS-PA
PROFINET IO
SIMATIC 300
CP-300
CPU-300
FM-300
Gateway
IM-300
PS-300
PS 307 10A
PS 307 10A
PS 307 2A
PS 307 5A
RACK-300
Rail
SM-300
AI-300
AI/AO-300
AO-300
DI-300
DI/DO-300
DO-300
IQ-SENSE
Special 300
SIMATIC 400
SIMATIC PC Based Control 300/400
SIMATIC PC Station

(0) UR

Slot	Module	Order number	Firmware	MPI address	I address	Q address	Comment
1							

S7-300 Hardware configurations:



(0) UR

Slot	Module
1	PS 307 2A
2	**CPU 315-2 DP**
X2	*DP*
3	
4	DI16xDC24V
5	DO16xDC24V/0.5A
6	
7	
8	
9	
10	
11	

Power supply card

CPU card

I/O cards

Interfaces card

RACK-300

Rail

SM-300

Input: IB0, IB1 (16 I/P)

Output: QB4, QB5 (16 O/P)

Serial of chosen cards

(0) UR

Slot	Module	Order number	Firmware	MPI address	I a...	Q...
1	PS 307 2A	6ES7 307-1BA00-0AA0				
2	**CPU 315-2 DP**	**6ES7 315-2AG10-0AB0**	**V2.0**	**2**		
X2	*DP*				*2047**	
3						
4	DI16xDC24V	6ES7 321-1BH01-0AA0			0...1	
5	DO16xDC24V/0.5A	6ES7 322-1BH01-0AA0				4...5
6						
7						
8						

S7-300 CABLE CONNECTION AS MPI:



SIMATIC Manager - [chocolate -- D:\magdy\chocolate production\chocolat]

File Edit Insert PLC View Options Window Help

- chocolate
  - SIMATIC 300(1)
    - CPU 313C
      - S7 Program(1)
        - Sources
        - Blocks

Options menu:

- Customize... Ctrl+Alt+E
- Access Protection
- Change Log
- Text Libraries
- Language for Display Devices...
- Manage Multilingual Texts
- Rewire...
- Run-Time Properties...
- Compare Blocks...
- Reference Data
- Define Global Data
- Configure Network
- Simulate Modules
- Configure Process Diagnostics
- CAx Data
- Set PG/PC Interface...

Set PG/PC Interface

Access Path | LLDP

Access Point of the Application:

S7ONLINE (STEP 7) --> PC Adapter(MPI)

(Standard for STEP 7)

Interface Parameter Assignment Used:

PC Adapter(MPI)

- ISO Ind. Ethernet -> Intel(R) 82566I
- ISO Ind. Ethernet -> Intel(R) 8256
- PC Adapter(Auto)
- PC Adapter(MPI)

Properties... | Copy... | Delete

(Parameter assignment of your PC adapter for an MPI network)

Interfaces

Add/Remove: Select...

OK | Cancel | Help

Properties - PC Adapter(MPI)

MPI | Local Connection

Connection to: USB

Apply settings for all modules

OK | Default | Cancel | Help

PLC SIEMENS S7-300 program:



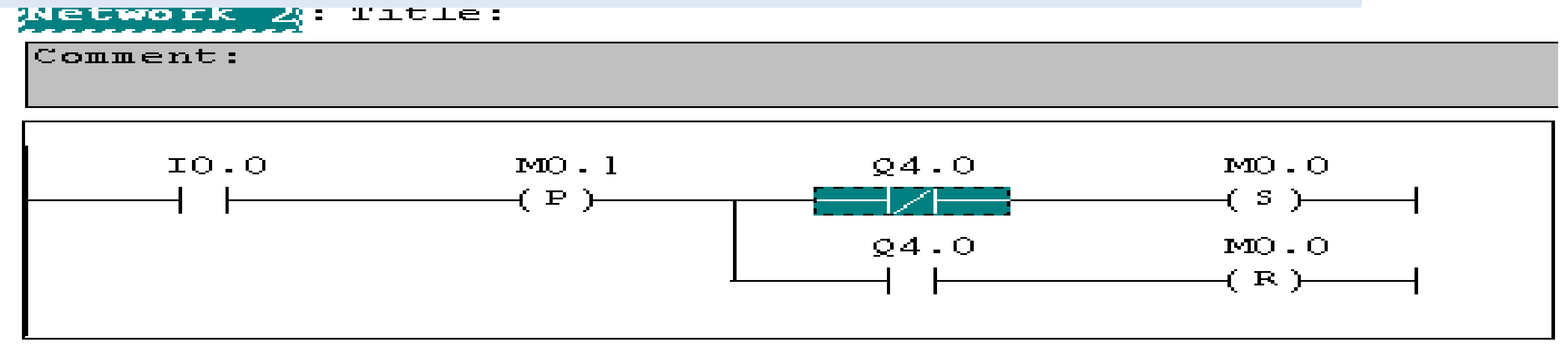
Network 1 : Title:

Comment:

I0.0 I0.1 Q4.0

Q4.0

PLC SIEMENS S7-300 old instructions:



Network 3 : Title:

Comment:

M0.0 Q4.0

PLC SIEMENS S7-300 :



CPU General Properties

HW Config - [SIMATIC 300(3) (Configuration) -- kjkhhgf]

Station Edit Insert PLC View Options Window Help

(0) UR

Slot	Module
1	
2	CPU 313C-2 DP
X2	DP
2.2	DI16/DO16
2.4	Count
3	
4	AI8x13Bit
5	AO2x12Bit
6	
7	
8	
9	
10	
11	

Properties - CPU 313C-2 DP - (R0/S2)

Time-of-Day Interrupts | Cyclic Interrupts | Diagnostics/Clock | Protection | Communication

General | Startup | Cycle/Clock Memory | Retentive Memory | Interrupts

Short Description: CPU 313C-2 DP

Work memory 64KB; 0,1ms/1000 instructions; DI16/DO16 integrated; 3 pulse outputs (2.5kHz); 3 channel counting and measuring with incremental encoders 24V (30kHz); MPI+ DP connector (DP-Master oder DP-Slave); multi-tier configuration up to 31 modules; Send and

Order No./ firmware: 6ES7 313-6CF03-0AB0 / V2.0

Name: CPU 313C-2 DP

Interface

Type: MPI

Address: 2

Networked: No

Properties...

Comment:

OK Cancel Help



CPU Retentive Memory Properties

HW Config - [SIMATIC 300(3) (Configuration) -- kjkhhgf]

Station Edit Insert PLC View Options Window Help

(0) UR

Slot	Module
1	
2	CPU 313C-2 DP
X2	DP
2.2	DI16/DO16
2.4	Count
3	
4	AI8x13Bit
5	AO2x12Bit
6	
7	
8	
9	
10	
11	

Properties - CPU 313C-2 DP - (R0/S2)

Time-of-Day Interrupts | Cyclic Interrupts | Diagnostics/Clock | Protection | Communication
General | Startup | Cycle/Clock Memory | Retentive Memory | Interrupts

Retentivity

Number of memory bytes starting with MB0: 16

Number of S7 timers starting with T0: 0

Number of S7 counters starting with C0: 8

Areas

	DB No.	Byte Address	Number of Bytes
Retentive Area 1:	1	0	0
Retentive Area 2:	1	0	0
Retentive Area 3:	1	0	0
Retentive Area 4:	1	0	0
Retentive Area 5:	1	0	0
Retentive Area 6:	1	0	0
Retentive Area 7:	1	0	0
Retentive Area 8:	1	0	0

OK Cancel Help



PLC SIEMENS S7-300 :

CPU Clock Memory Properties

HW Config - [SIMATIC 300(1) (Configuration) -- ITC Project]

Station Edit Insert PLC View Options Window Help

Frequency	0.5	0.62	1	1.25	2	2.5	5	10
Period	2	1.6	1	0.8	0.5	0.4	0.2	0.1

(0) UR

Slot	Module
1	
2	CPU 313C-2 DP
X2	DP
2.2	DI16/DO16
2.4	Count
3	
4	AI8x13Bit
5	AO2x12Bit
6	
7	
8	
9	
10	
11	

Properties - CPU 313C-2 DP - (R0/S2)

Time-of-Day Interrupts | Cyclic Interrupts | Diagnostics/Clock | Protection | Communication
General | Startup | Cycle/Clock Memory | Retentive Memory | Interrupts

Cycle

Update OB1 process image cyclically

Scan cycle monitoring time [ms]: 150

Minimum scan cycle time [ms]: 0

Scan cycle load from communication [%]: 20

Size of the process image

OB85 - call up at I/O access error: No OB85 call up

Clock Memory

Clock memory

Memory Byte: 10

OK | Cancel | Help

(0) UR

Slot	Module	...	Order number
1			

PLC SIEMENS S7-300 TIMERS:



1- ON-DELAY TIMER (S_ODT).
2- OFF-DELAY(S_OFFDT).
3- RETENTIVE ON-DELAY TIMER (S_ODTS).
4- PULSE EXTENDED TIMER(S_PEXT).
5- PULSE TIMER(S_PULSE).

إدخال الزمن:

S5T#(VALUE) H (VALUE) M (VALUE) S (VALUE) MS | MIN.: 10MS | MAX.: 2H 46M 30S

TV (TIMER VALUE)	BI (BINARY VALUE/ CURRENT VALUE)	BIT	T0
↓	↓	↓	↓
TV (TIMER VALUE)	BI (BINARY VALUE/ CURRENT VALUE)	BIT	T255

On –Delay TIMER (S_ODT):



T37

S_ODT

I0.0

S

Q

Q0.0

S5T#5S

TV

BI

...

...

R

BCD

...

I0.0

3 SEC

5 SEC

T37(bit)

Q0.0

تتبدل الريشة عندما ينتهى عد التيمر من العد المطلوب

OFF –Delay TIMER (S_OFFDT):



T37

S_OFFDT

I0.0

S

Q

Q0.0

S5T#5S

TV

BI

...

...

R

BCD

...

I0.0

Q0.0

5 SEC

تتبدل الريشة عند : وجود إشارة أو أن التيمر لم ينتهى بعد من العد المطلوب

Retentive On –Delay TIMER (S_ODTS):



T37 عادى جدا

S_ODTS

Input	Pin	Pin	Output
I0.0	S	Q	Q0.0
S5T#5S	TV	BI	...
I0.1	R	BCD	...

Timing Diagram

I0.0

Q0.0

5 SEC

I0.1

- تتبدل الريشة عندما ينتهى التيمر من العد المطلوب.

-هذا التيمر لا تعود ريشته للوضع الأصلى إلا بأمر RESET

- هذا التيمر هنا (S7-300)غير تراكمى أى يعد حتى لو انقطعت الإشارة عنه **وهذه مشكلة**

PULSE EXTENDED TIMER(S_PEXT):



T0

I0.0 — S — S_PEXT — Q — Q0.0

S5T#5S — TV — BI — ...

I0.1 — R — BCD — ...

I0.0

I0.1

Q0.0

t = 5 sec الزمن

-- تتبدل الريشة عند : وجود إشارة **أو** أن التيمر لم ينتهى بعد من العد المطلوب.

-- هذا التيمر يبدل الريشة لفترة زمنية محددة (t) تتجدد مع كل إشارة جديدة للتيمر.

PULSE TIMER(S_PULSE):



T0

S_PULSE

I0.0	S	Q	Q0.0
S5T#5S	TV	BI
I0.1	R	BCD

I0.0

I0.1

Q0.0

t = 5 sec الزمن

-- تتبدل الريشة عند : وجود إشارة **و** أن التيمر لم ينتهى بعد من العد المطلوب.

-- هذا التيمر يبدل الريشة لفترة زمنية محددة (t) بشرط وجود الإشارة على التيمر.

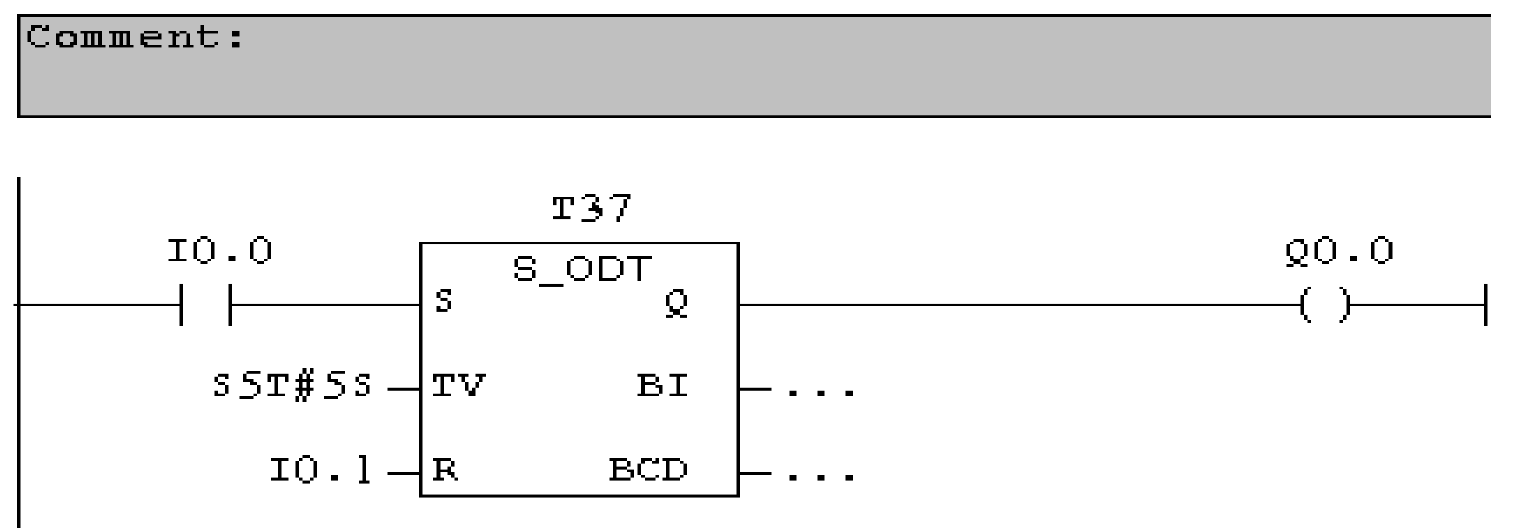
TIMERS:



إذا وجدت إشارة للعد على التيمر أو الكونتر
وفى نفس الوقت وجدت إشارة لأمر ال COUNTER
للتيمر أو الكونتر فإن البرنامج يعطى الأولوية RESET
لأمر ال RESET

الدليل:

SIEMENS S7-300 PROGRAM
(SIMATIC MANAGER)



أمر إشارة العد و
فى نفسRESET
ال BLOCK أى
نفس النتورك
وبالتالى ترتيب
النتورك لا وجود
له

PLC SIEMENS S7-300 COUNTERS:



1- UP COUNTER (CTU).

2- DOWN COUNTER (CTD).

3- UP/DOWN COUNTER (CTUD).

C - Area

PV	CV	BIT	C0
PV	CV	BIT	C1
⋮	⋮	⋮	⋮
PV	CV	BIT	C255

PLC SIEMENS S7-300 COUNTERS:



???

S_CU

CU Q

... S CV ...

... PV CV_BCD ...

... R

???

S_CUD

CU Q

... CD CV ...

... S CV_BCD ...

... PV

... R

???

S_CD

CD Q

... S CV ...

... PV CV_BCD ...

... R

-- شرط الثلاث عدادات هو: عد العداد لا يساوى الصفر ---- **وهذه مشكلة.**

-- S : تضع PV داخل CV (SET) .

-- إدخال القيمة للعداد: إما عن طريق WORD مثل: ...... / MW0 / MW2 أو C# (VALUE) مثال: C#5

-- حل المشكلة يتم إما عن طريق: COMPARE أو SFB (SYSTEM FUNCTION BLOCK)

MOVE:



S7-200:

MOV_B — EN, ENO, IN, OUT (???? → ????)

IN, OUT: BYTE

MOV_W — EN, ENO, IN, OUT (???? → ????)

IN, OUT: WORD

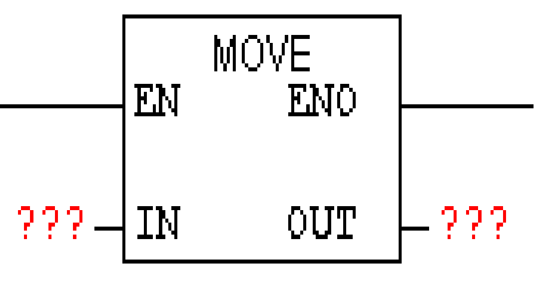
MOV_DW — EN, ENO, IN, OUT (???? → ????)

IN, OUT: DOUBLE WORD (integer)

MOV_R — EN, ENO, IN, OUT (???? → ????)

IN, OUT: DOUBLE WORD (REAL)

S7-300:



Byte → word , word → byte , word → double word , double word → word

-- IN: address / value ------ OUT: address

-- Blocks in s7-200 must have enable signal to EN (it is not main condition in s7-300)

Compare :



IN1: OPERAND 1

IN2: OPERAND2

IN1, IN2:

Must be suitable to DATA TYPE (I,D,R)

CMP ==I

??? IN1

??? IN2

CMP ==I

CMP <>I

CMP >I

CMP <I

CMP >=I

CMP <=I

New network

Bit logic

Comparator

EQ_I

NE_I

GT_I

LT_I

GE_I

LE_I

EQ_D

NE_D

GT_D

LT_D

GE_D

LE_D

EQ_R

NE_R

GT_R

LT_R

GE_R

LE_R

Using Compare in Counters:



C0

I0.0 — CU (S_CU) Q — Q0.1 ( )

M20.0 — S　CV — MW2

MW0 — PV　CV_BCD — ...

I0.1 — R

Network 2: Title:

Comment:

CMP >=I — Q0.0 ( )

MW2 — IN1

4 — IN2

I0.0

I0.1

MW2

0　1　2　3　4　5　0

Q0.0

-- تتبدل الريشة عند : عد العداد ≥ العد المطلوب

-- Q0.1 تعمل مع أول عدة وبالتالى الخرج الفعلى هو Q0.0

-- وضعنا M20.0 على S فى الكونتر لأننا لا نحتاج هذه الخاصية وتركها يعتبر SYNTAX ERROR

INTEGER FUNCTION:



ADDITION:

Critical cases:

1- source = destination:

مع كل scan بيجمع فى نفس المخزن الجديد +1

Unpredicted value for MW0

Solution:

Put

or

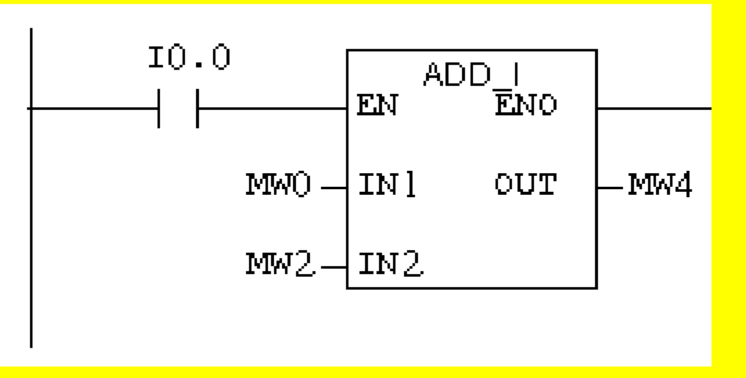


INTEGER FUNCTION:

ADDITION:

Critical cases:

2- Out of range:



MW0+MW2 > MW4

Solution:

Network 2: Title:

I0.0

ADD_DI

EN ENO

MD10 — IN1 OUT — MD4

MD14 — IN2

MW0

MW2

Network 3: Title:

MOVE

EN ENO

MW0 — IN OUT — MD10

MOVE

EN ENO

MW2 — IN OUT — MD14

INTEGER FUNCTION:

SUBTRACTION:



Critical cases:

or

1- SOURCE = DESTINATION:

M20.0 —(P)— or M20.0 —(N)—

2- Value is not required to be –VE:

Network 1 : Title:

I0.0 —| |— M20.0 —(P)— CMP >I (IN1: MW0, IN2: 0) — SUB_I (EN, ENO, IN1: MW0, IN2: 1, OUT: MW0)

Network 2 : Title:

CMP <I (IN1: MW0, IN2: 0) — MOVE (EN, ENO, IN: 0, OUT: MW0)

SUB_I: EN, ENO, IN1 = WORD, IN2 = WORD, OUT = ??? WORD

SUB_DI: EN, ENO, IN1 = DOUBLE WORD, IN2 = DOUBLE WORD, OUT = ??? DOUBLE WORD

INTEGER FUNCTION:

MULTIPLICATION:



Critical cases:

1- SOURCE = DESTINATION:

M20.0 —(P)— or M20.0 —(N)—

2- Out of range: [MW0 X MW2] > MW4

I0.0 — MUL_DI (EN, ENO; IN1: MD10, IN2: MD14; OUT: MD4)

MW0 x MW2 = MD4

Network 2: Title:

MOVE (EN, ENO; IN: MW0; OUT: MD10) — MOVE (EN, ENO; IN: MW2; OUT: MD14)

MUL_I: EN, ENO; IN1: WORD, IN2: WORD; OUT: ??? WORD

MUL_DI: EN, ENO; IN1: DOUBLE WORD, IN2: DOUBLE WORD; OUT: ??? DOUBLE WORD

INTEGER FUNCTION:

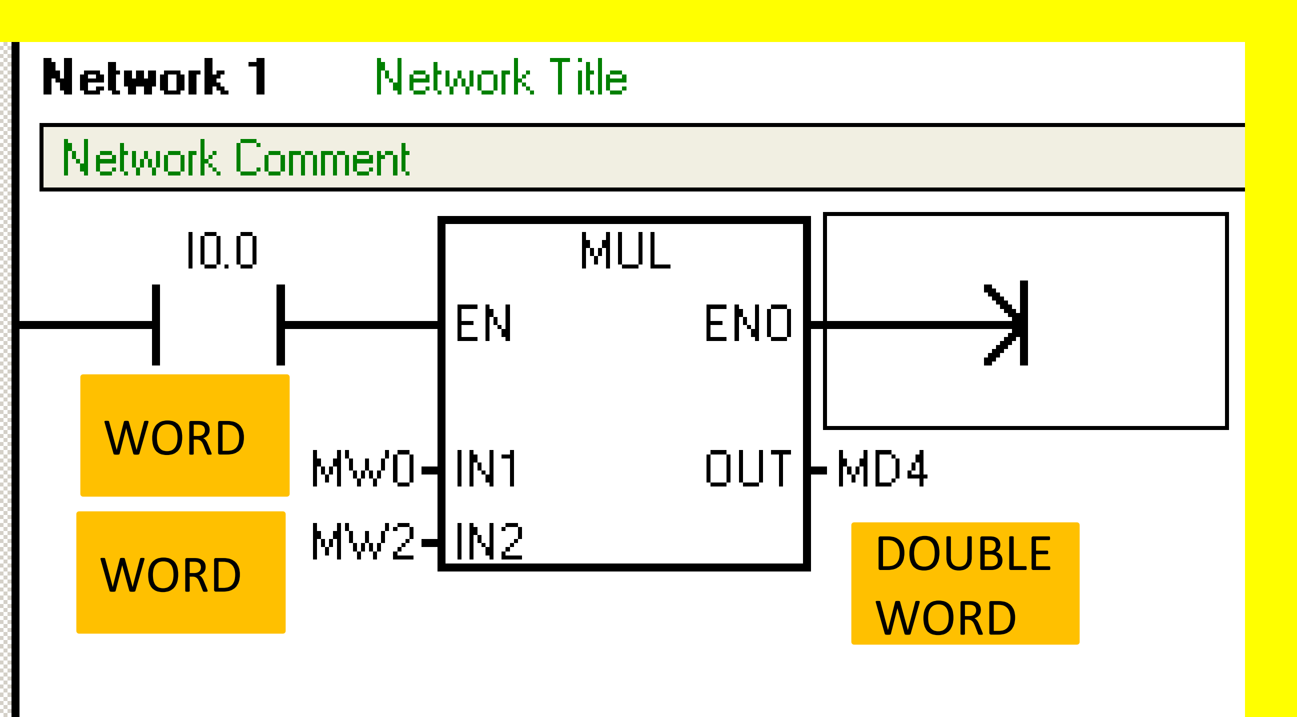
MULTIPLICATION:



Critical cases:

2- Out of range:

يوجد blockخاص لحل هذه المشكلة فى plc s7-200 وهو غير موجود فى قائمة العمليات integer function فى s7-300





INTEGER FUNCTION:

DIVISION:

Critical cases:

1- SOURCE = DESTINATION:

M20.0 —(P)— or M20.0 —(N)—

2- RUN TIME ERROR:

I0.0 — DIV_I: EN, ENO; IN1 = 5, IN2 = 0, OUT = MW0

3- OUTPUT IS INTEGER:

I0.0 — DIV_I: EN, ENO; IN1 = 5, IN2 = 2, OUT = MW0 → 2

DIV_I: EN, ENO; IN1 = WORD, IN2 = WORD, OUT = ??? → WORD

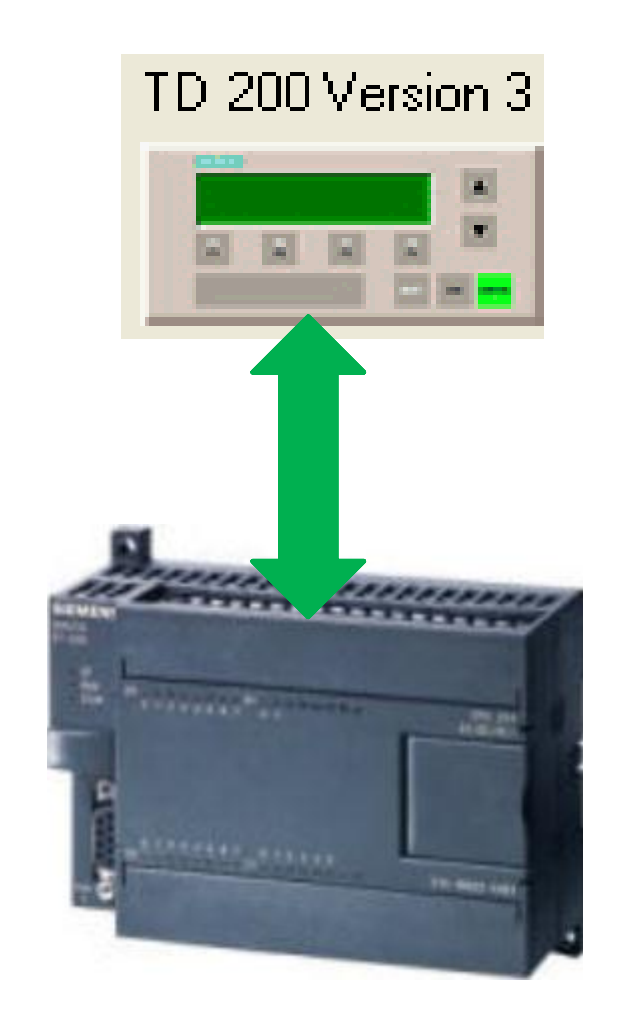
DIV_DI: EN, ENO; IN1 = DOUBLE WORD, IN2 = DOUBLE WORD, OUT = ??? → DOUBLE WORD

Enter Data to PLC:



1- USING HMI:

Momentary	= PUSHBUTTON = SET BIT WHILE KEY PRESSED = Set Tag Bit(TAG NAME,'1'); Set Tag Bit(TAG NAME,'0'); = ON On touch
Maintained	= Toggle = Reverse = Invert bit
Latched	= set bit = Set Tag Bit(TAG NAME,'1');
Unlatched	= Reset bit = Set Tag Bit(TAG NAME,'0');



2- USING I/P CARD AND A GROUP OF SWITCHES:

Enter Data to PLC:



1L+
.0
.1
.2
.3
.4
.5
.6
.7
1M-

L+

M-

IB0: 0 0 0 0 1 0 0 0

Network 1 : Title:

I1.0

C0

S_CU

CU Q

M20.0 – S CV – MW0

C#3 – PV CV_BCD – ...

I1.1 – R

MW4	0001 0000
MW2	0000 1010

Network 2 : Title:

CMP >=I

MW0 – IN1

MW2 – IN2

CMP <>I

MW0 – IN1

0 – IN2

Q4.0

Network 3 : Title:

MOVE

EN ENO

IB0 – IN OUT – MW4

WORD

BCD_I

EN ENO

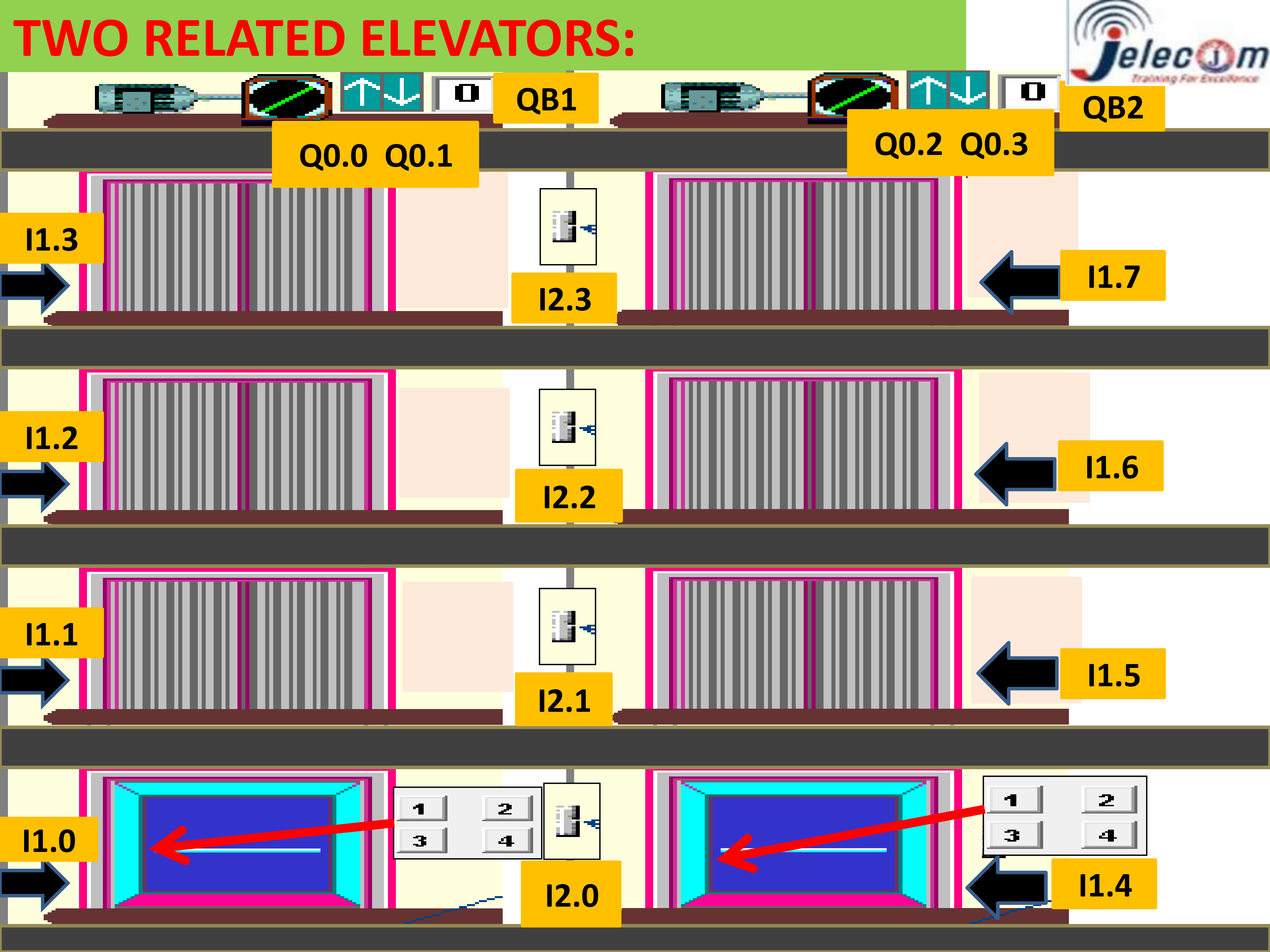
MW4 – IN OUT – MW2

How to display value?



SEVEN SEGMENT

TWO RELATED ELEVATORS:



TWO RELATED ELEVATORS:



مصعدين مترابطين كل مصعد مكون من أربعة أدوار يوجد لكل مصعد اربعة مفاتيح داخلية لحركة الكابينة ولابد من مراعاة الاتى:

-- لا بد من اعطاء فترة كافية للمستخدم لكي يخرج من الكابينة عند التوقف.

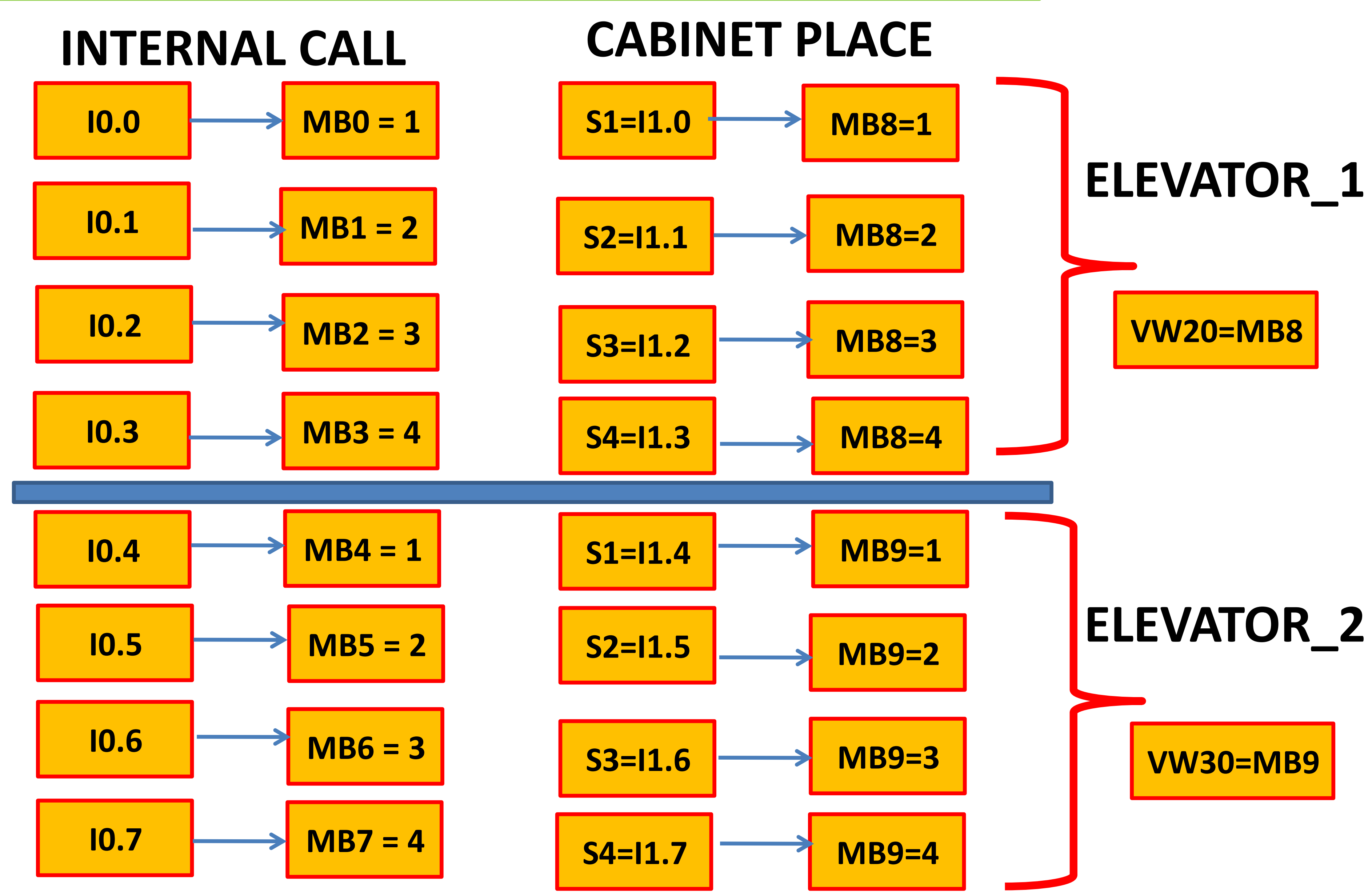
-- يمكن ان يطلب اثنان من المستخدمين أو أكثر الكابينة فى نفس الوقت (فى هذه الحالة اذا كانت الكابينة متجهة للصعود قبل التوقف فانها تكمل صعود ثم النزول فيما بعد واذا كانت الكابينة متجهة للنزول قبل التوقف فانها تكمل نزول ثم الصعود فيما بعد) والكابينة الأقرب للطابق تتوجه للطابق.

I0.0 | I0.1 | I0.2 | I0.3

I0.4 | I0.5 | I0.6 | I0.7

TWO RELATED ELEVATORS:

Idea of work:



TWO RELATED ELEVATORS:

Idea of work:

EXTERNAL CALL

I2.0 → VW0 (S7-200)

I2.1 → VW2 (S7-200)

I2.2 → VW4 (S7-200)

I2.3 → VW6 (S7-200)

|VW4-VW20|>=|VW4-VW30|

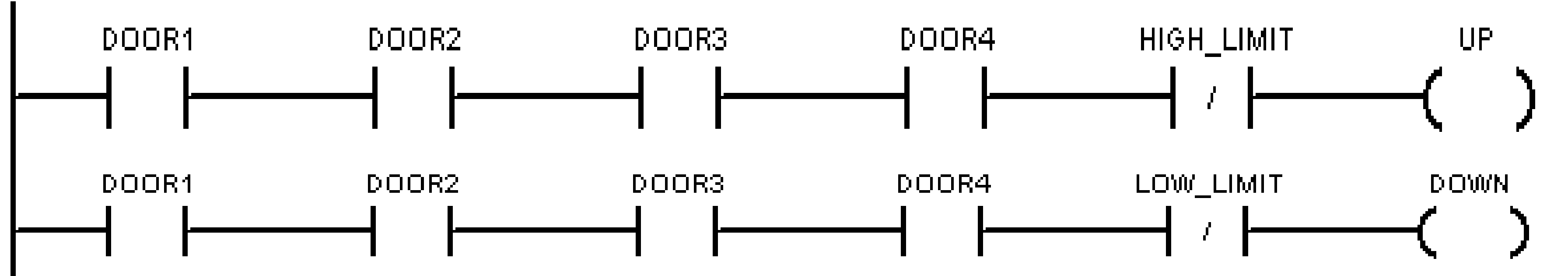
→ CANCEL1

TWO RELATED ELEVATORS:



NOTE:

لاحظ انه توجد بعض الملحقات لهذا المشروع مثل وجود لمبتين فى كل طابق لتوضيح اتجاه المصعد (صاعد ام هابط) ولا بد من أخذ ليميت سويتش كل باب فى كل طابق فى الاعتبار فلا بد أن تكون كل الأبواب مغلقة لكى تتحرك الكابينة ولا بد من وضع مفتاحين ليميت سويتش أحدهما فى أعلى الطوابق والأخر أسفل الطوابق للطوارئ لكى يفصلا الكابينة اذا تجاوزت أعلى الطوابق أو تجاوزت أسفل الطوابق ولكن كل هذه الأشياء يمكن اضافتها بسهولة على البرنامج بأساسيات ال PLC (PLC LEVEL1) فالغرض من هذا المشروع هو تطبيق الأوامر الجديدة وهو ما يمكن أن يشكل صعوبة فى البداية.



TWO RELATED ELEVATORS:



Network 1 Network Title

Network Comment

v1_ask1:I0.0 → MOV_B (EN, ENO; IN: 1, OUT: MB0)

Network 2 Network Title

Network Comment

v1_ask2:I0.1 → MOV_B (EN, ENO; IN: 2, OUT: MB1)

Network 3 Network Title

Network Comment

v1_ask3:I0.2 → MOV_B (EN, ENO; IN: 3, OUT: MB2)

Network 4 Network Title

Network Comment

v1_ask4:I0.3 → MOV_B (EN, ENO; IN: 4, OUT: MB3)

Network 5 Network Title

Network Comment

v2_ask1:I0.4 → MOV_B (EN, ENO; IN: 1, OUT: MB4)

Network 6 Network Title

Network Comment

v2_ask2:I0.5 → MOV_B (EN, ENO; IN: 2, OUT: MB5)

Network 7 Network Title

Network Comment

v2_ask3:I0.6 → MOV_B (EN, ENO; IN: 3, OUT: MB6)

Network 8 Network Title

Network Comment

v2_ask4:I0.7 → MOV_B (EN, ENO; IN: 4, OUT: MB7)

TWO RELATED ELEVATORS:



Network 9 Network Title

Network Comment

v1_s1:I1.0

MOV_B
EN ENO
1 IN OUT MB8

T37
P

9.A

T37
IN TON
10 PT 100 ms

MOV_B
EN ENO
0 IN OUT MB0

9.A

MOV_W
EN ENO
0 IN OUT VW0

TWO RELATED ELEVATORS:



Network 10 Network Title

Network Comment

v1_s2I1.1

MOV_B
EN ENO
2 IN OUT MB8

T38
P

10.A

T38
IN TON
10 PT 100 ms

MOV_B
EN ENO
0 IN OUT MB1

10.A

MOV_W
EN ENO
0 IN OUT VW2

TWO RELATED ELEVATORS:



Network 11 Network Title

Network Comment

v1_s3:I1.2

MOV_B
EN ENO
3 IN OUT MB8

T39

P

11.A

T39
IN TON
10 PT 100 ms

MOV_B
EN ENO
0 IN OUT MB2

11.A

MOV_W
EN ENO
0 IN OUT VW4

TWO RELATED ELEVATORS:



Network 12 Network Title

Network Comment

```
v1_s4I1.3                MOV_B                                  T40
--| |--+----------------|EN        ENO|-------------------------| |------|P|----+
       |            4 --|IN        OUT|-- MB8                                    | 12.A
       |                                                                         |
       |                 T40                                                     |
       +----------------|IN        TON|
                   10 --|PT     100 ms|

                         MOV_B
        +---------------|EN        ENO|---->|
        |           0 --|IN        OUT|-- MB3
 12.A --|
        |                MOV_W
        +---------------|EN        ENO|---->|
                    0 --|IN        OUT|-- VW6
```

TWO RELATED ELEVATORS:



Network 13 Network Title

Network Comment

v2_s1:I1.4

MOV_B
EN ENO
1 - IN OUT - MB9

T41

P

13.A

T41
IN TON
10 - PT 100 ms

MOV_B
EN ENO
0 - IN OUT - MB4

13.A

MOV_W
EN ENO
0 - IN OUT - VW0

TWO RELATED ELEVATORS:



Network 14 Network Title

Network Comment

v2_s2I1.5

MOV_B
EN ENO
2 - IN OUT - MB9

T42

P

14.A

T42
IN TON
10 - PT 100 ms

MOV_B
EN ENO
0 - IN OUT - MB5

14.A

MOV_W
EN ENO
0 - IN OUT - VW2

TWO RELATED ELEVATORS:



Network 15 Network Title

Network Comment

v2_s3:I1.6

MOV_B
EN ENO
3 IN OUT MB9

T43

P

15.A

T43
IN TON
10 PT 100 ms

MOV_B
EN ENO
0 IN OUT MB6

15.A

MOV_W
EN ENO
0 IN OUT VW4

TWO RELATED ELEVATORS:



Network 16   Network Title

Network Comment

v2_s4I1.7

MOV_B
EN ENO
4 - IN OUT - MB9

T44

P

16.A

T44
IN TON
10 - PT 100 ms

MOV_B
EN ENO
0 - IN OUT - MB7

16.A

MOV_W
EN ENO
0 - IN OUT - VW6

Network 17

up1Q0.0

down1Q0.1

/

M20.0

( )

M20.0

TWO RELATED ELEVATORS:



Network 18

up2Q0.2
down2Q0.3
M20.1
M20.1

Network 19

MB1
>B
MB8
MB2
>B
MB8
MB3
>B
MB8
cancel1up:M30.3
v1_waiting:M30.0
down1:Q0.1
up1:Q0.0
periority_fo~:V100.0
VW2
>I
VW20
VW4
>I
VW20
VW6
>I
VW20

TWO RELATED ELEVATORS:



Network 20

MB0 <B MB8 — MB0 <>B 0

MB1 <B MB8 — MB1 <>B 0

MB2 <B MB8 — MB2 <>B 0

periority_fo~:V100.0 / — VW0 <I VW20 — VW0 <>I 0

VW2 <I VW20 — VW2 <>I 0

VW4 <I VW20 — VW4 <>I 0

cancel1do~:M30.2 / — v1_waiting:M30.0 / — up1:Q0.0 / — down1:Q0.1 ( )

TWO RELATED ELEVATORS:



Network 21

MB5
>B
MB9

MB6
>B
MB9

MB7
>B
MB9

periority_fo~:V100.0

VW2
>I
VW30

VW4
>I
VW30

VW6
>I
VW30

cancel2up:M30.5
/

v2_waiting:M30.1
/

down2:Q0.3
/

up2:Q0.2
( )

TWO RELATED ELEVATORS:



Network 22

MB4 <B MB9 — MB4 <>B 0

MB5 <B MB9 — MB5 <>B 0

MB6 <B MB9 — MB6 <>B 0

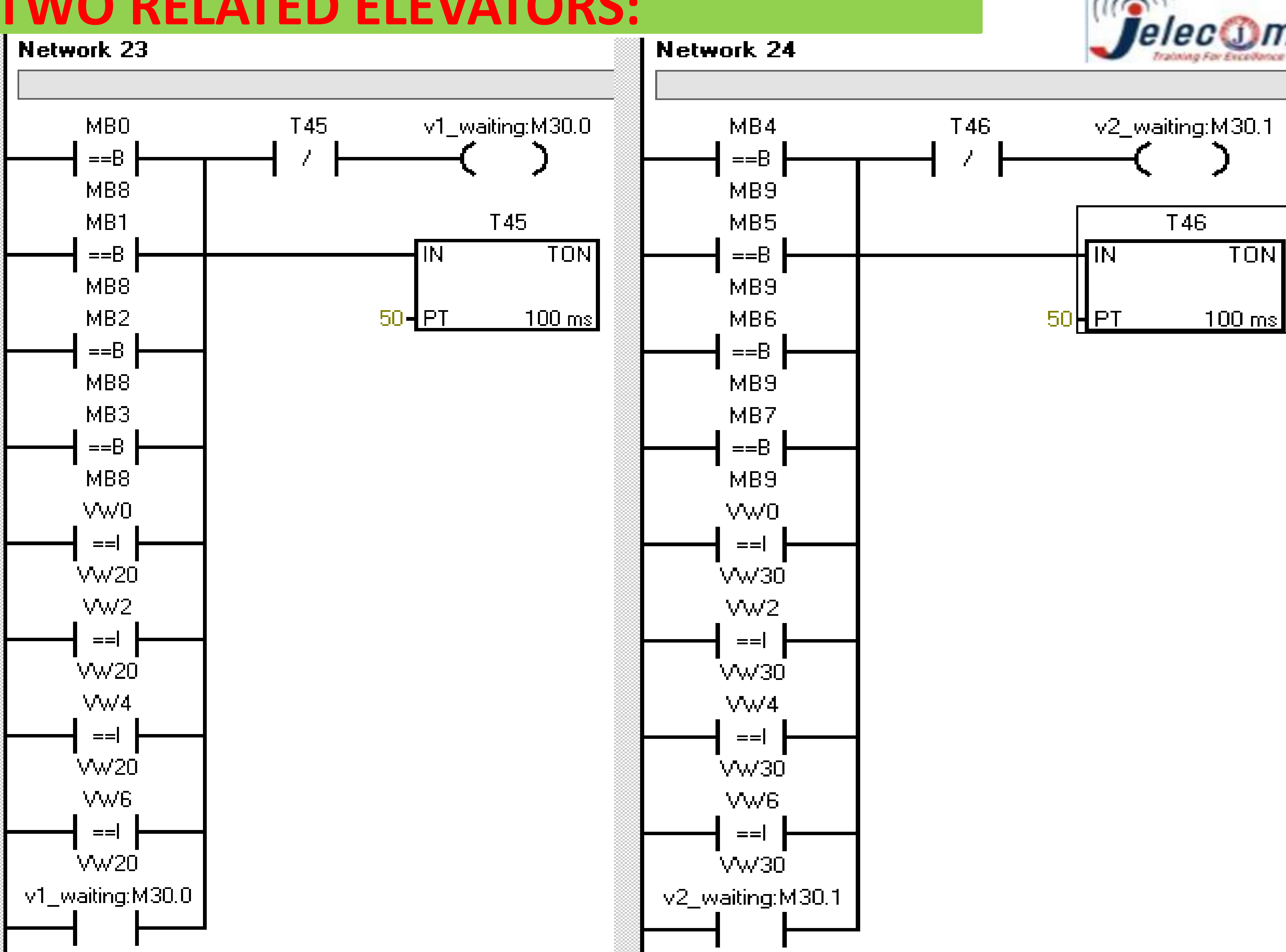
periority_fo~:V100.0 — VW0 <I VW30 — VW0 <>I 0

VW2 <I VW30 — VW2 <>I 0

VW4 <I VW30 — VW4 <>I 0

cancel2do~:M30.4 / — v2_waiting:M30.1 / — up2:Q0.2 / — down2:Q0.3 ( )

TWO RELATED ELEVATORS:



TWO RELATED ELEVATORS:



Network 25

```
MB0 ==B 1    MB3 ==B 4
MB0 ==B 1    MB2 ==B 3
MB1 ==B 2    MB3 ==B 4
VW0 ==I 1    VW6 ==I 4
VW0 ==I 1    VW4 ==I 3
VW2 ==I 2    VW6 ==I 4
v1_intext:V60.0

up1:Q0.0 /   down1:Q0.1 /   v1_s1:I1.0 /   v1_s4:I1.3 /
    M20.0       cancel1do~:M30.2 ( )
    M20.0 /     cancel1up:M30.3 ( )
```

TWO RELATED ELEVATORS:



Network 26

TWO RELATED ELEVATORS:

Network 27

extone:I2.0 — MOV_W (EN, ENO, IN: 1, OUT: VW0)

Network 28

exttwo:I2.1 — MOV_W (EN, ENO, IN: 2, OUT: VW2)

Network 29

extthree:I2.2 — MOV_W (EN, ENO, IN: 3, OUT: VW4)

Network 30

extfour:I2.3 — MOV_W (EN, ENO, IN: 4, OUT: VW6)

Network 31

SM0.0 — MOV_B (EN, ENO, IN: MB8, OUT: VB21) — MOV_B (EN, ENO, IN: MB9, OUT: VB31)

MOV_B (EN, ENO, IN: MB8, OUT: QB1) — MOV_B (EN, ENO, IN: MB9, OUT: QB2)

Network 32

VW0 ==I 1 — SUB_I (EN, ENO, IN1: VW0, IN2: VW20, OUT: VW40) — VW40 <I 0 — MUL_I (EN, ENO, IN1: -1, IN2: VW40, OUT: VW40)

SUB_I (EN, ENO, IN1: VW0, IN2: VW30, OUT: VW42) — VW42 <I 0 — MUL_I (EN, ENO, IN1: -1, IN2: VW42, OUT: VW42)

TWO RELATED ELEVATORS:



Network 33

VW2 ==I 2

SUB_I: EN, ENO; IN1 VW2, IN2 VW20, OUT VW44

VW44 <I 0

MUL_I: EN, ENO; IN1 -1, IN2 VW44, OUT VW44

SUB_I: EN, ENO; IN1 VW2, IN2 VW30, OUT VW46

VW46 <I 0

MUL_I: EN, ENO; IN1 -1, IN2 VW46, OUT VW46

Network 34

VW4 ==I 3

SUB_I: EN, ENO; IN1 VW4, IN2 VW20, OUT VW48

VW48 <I 0

MUL_I: EN, ENO; IN1 -1, IN2 VW48, OUT VW48

SUB_I: EN, ENO; IN1 VW4, IN2 VW30, OUT VW50

VW50 <I 0

MUL_I: EN, ENO; IN1 -1, IN2 VW50, OUT VW50

TWO RELATED ELEVATORS:



Network 35

VW6 ==I 4

SUB_I: EN, ENO; VW6 - IN1, VW20 - IN2, OUT - VW52

VW52 <I 0

MUL_I: EN, ENO; -1 - IN1, VW52 - IN2, OUT - VW52

SUB_I: EN, ENO; VW6 - IN1, VW30 - IN2, OUT - VW54

VW54 <I 0

MUL_I: EN, ENO; -1 - IN1, VW54 - IN2, OUT - VW54

Network 36

VW0 ==I 1 — VW40 >=I VW42

VW2 ==I 2 — VW44 >=I VW46

VW4 ==I 3 — VW48 >=I VW50

VW6 ==I 4 — VW52 >=I VW54

periority_fo~:V100.0 ( )

TWO RELATED ELEVATORS:

Jelecom Training For Excellence

Network 37

VW0 ==I 1 — MB2 ==B 3 / MB3 ==B 4 — periority_fo~:V100.0 / — v1_intext:V60.0 ( )

VW2 ==I 2 — MB3 ==B 4

VW4 ==I 3 — MB0 ==B 1

VW6 ==I 4 — MB0 ==B 1 / MB1 ==B 2

Network 38

VW0 ==I 1 — MB6 ==B 3 / MB7 ==B 4 — periority_fo~:V100.0 — v2_intext:V60.1 ( )

VW2 ==I 2 — MB7 ==B 4

VW4 ==I 3 — MB4 ==B 1

VW6 ==I 4 — MB4 ==B 1 / MB5 ==B 2

Create Functions(FC):



SIMATIC Manager - [magdy -- C:\Program Files\Step7\s7proj\magdy]

File Edit Insert PLC View Options Window Help

< No Filter >

- magdy
  - SIMATIC 300(1)
    - CPU 315-2 DP
      - S7 Program(2)
        - Sources
        - Blocks

OB1

Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Delete	Del
Insert New Object ▸	
PLC ▸	
Rewire...	
Compare Blocks...	
Reference Data ▸	
Check Block Consistency...	
Print ▸	
Object Properties...	Alt+Return
Special Object Properties ▸	

Insert New Object submenu:

- Organization Block
- Function Block
- Function
- Data Block
- Data Type
- Variable Table

Create Functions(FC):



nagdy\SIMATIC 300(1)\CPU 315-2 DP]

bug View Options Window Help

Contents Of: 'Environment\Interface\IN'

- Interface
  - IN
    - start
    - stop
  - OUT
    - motor
  - IN_OUT

Name	Data Type	Comment
start	Bool	
stop	Bool	

FC1 : Title:

Comment:

Network 1 : Title:

Comment:

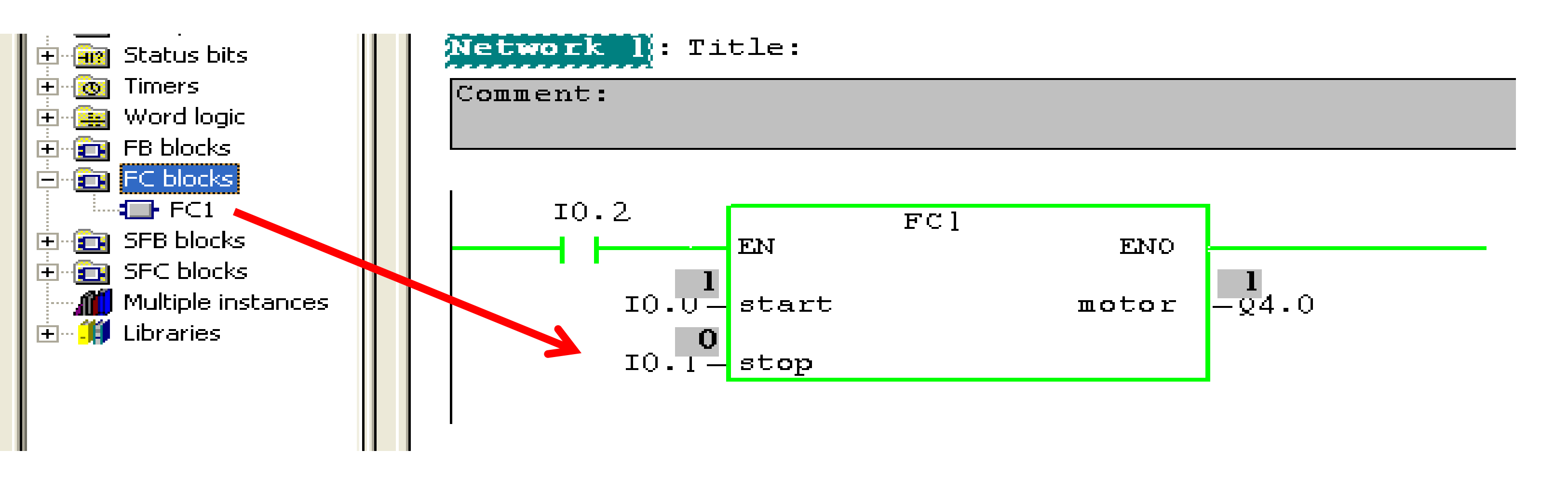
#start #start — #stop #stop — #motor #motor ( )

#motor #motor

Create Functions(FC):



OB1 :



FC1:

Network 1: Title:

Comment:

#start
#start

#stop
#stop

#motor
#motor

#motor
#motor

Functions(FC):



Q0.0	0
Q0.1	0
Q0.2	0
Q0.3	0
Q0.4	0
Q0.5	0
Q0.6	0
Q0.7	0

"RSET"
EN ENO
Q0.0 — S_BIT
8 — N

Q0.0	1
Q0.1	1
Q0.2	1
Q0.3	1
Q0.4	1
Q0.5	1
Q0.6	1
Q0.7	1

"SET"
EN ENO
Q0.0 — S_BIT
8 — N

- Libraries
  - stdlibs
  - Standard Library
    - Miscellaneous Blocks
    - TI-S7 Converting Blocks
      - FB80 LEAD_LAG CONVERT
      - FB81 DCAT TIMERS
      - FB82 MCAT TIMERS
      - FB83 IMC COMPARE
      - FB84 SMC COMPARE
      - FB85 DRUM TIMERS
      - FB86 PACK MOVE
      - FC80 TONR TIMERS
      - FC81 IBLKMOV MOVE
      - FC82 RSET BIT_LOGC
      - FC83 SET BIT_LOGC
      - FC84 ATT TABLE
      - FC85 FIFO TABLE
      - FC86 TBL_FIND TABLE
      - FC87 LIFO TABLE
      - FC88 TBL TABLE
      - FC89 TBL_WRD TABLE
      - FC90 WSR SHIFT
      - FC91 WRD_TBL TABLE
      - FC92 SHRB SHIFT
      - FC93 SEG CONVERT
      - FC94 ATH CONVERT

Functions(FC):



FC80

"TONR"

Input	Pin	Pin	Output
	EN	ENO	
إشارة العد للتيمر I0.0	TMR_EN	Q	Q0.0
إشارة التصفير للتيمر I0.1	RESET		
MD0	PV		
#OB1_PREV_CYCLE	DELTA_T		
MD4	ET		

MD4 ← Current value

#OB1_PREV_CYCLE ← تعبير ثابت يكتب حتى يقرئ هذا ال BLOCK كل 1 SCAN

Timing Diagram

I0.0

IF MD0 = 5000

Q0.0

3 SEC

2 SEC

I0.1

- تتبدل الريشة عند : عد التيمر ≥ العد المطلوب
-هذا التيمر لا تعود ريشته للوضع الأصلى إلا بأمر RESET
- هذا التيمر تراكمى أى يمكن أن يعد بشكل متواصل / متقطع

PV= TIME(SEC) * 1000

Create Functions(FB):





File Edit Insert PLC View Options Window Help

< No Filter >

magdy
SIMATIC 300(1)
CPU 315-2 DP
S7 Program(2)
Sources
Blocks

OB1

Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Delete Del
Insert New Object
PLC
Rewire...
Compare Blocks...
Reference Data
Check Block Consistency...
Print
Object Properties... Alt+Return
Special Object Properties

Organization Block
Function Block
Function
Data Block
Data Type
Variable Table

Create Functions(FB):



agdy\SIMATIC 300(1)\CPU 315-2 DP]

ug View Options Window Help

Contents of: 'Environment\Interfac

Interface
IN
CU
R
OUT
MOTOR
CV

Name	Data Type	Address
CU	Bool	0.0
R	Bool	0.1

FB1 : Title:

Network 1 : Title:

#CU
C0
#CU
S_CU
CU Q
M20.0 S
CV MW0
C#3 PV
CV_BCD ...
#R
#R R

Network 2 : Title:

CMP >=I
#MOTOR
#MOTOR
MW0 IN1
5 IN2

Network 3 : Title:

MOVE
EN ENO
MW0 IN
#CV
OUT #CV

OB1:

Move
Program control
Shift/Rotate
Status bits
Timers
Word logic
FB blocks
FB1
FC blocks
SFB blocks
SFC blocks
Multiple instances
Libraries

Comment:

Network 1: Title:

Comment:

DB1
FB1
EN ENO
I0.0 CU MOTOR Q4.0
I0.1 R CV MW4

System Function Blocks (SFB):



DB1

"CTU"
EN ENO
CU Q
R CV
PV

WORD

WORD

DB2

"CTUD"
EN ENO
CU QU
CD QD
R CV
LOAD
PV

DB3

"CTD"
EN ENO
CD Q
LOAD CV
PV

- Libraries
  - stdlibs
  - Standard Library
    - Miscellaneous Blocks
    - TI-S7 Converting Blocks
    - PID Control Blocks
    - IEC Function Blocks
    - System Function Blocks
      - SFB0 CTU IEC_TC
      - SFB1 CTD IEC_TC
      - SFB2 CTUD IEC_TC
      - SFB3 TP IEC_TC
      - SFB4 TON IEC_TC
      - SFB5 TOF IEC_TC
      - SFB8 USEND COM_FUNC
      - SFB9 URCV COM_FUNC
      - SFB12 BSEND COM_FUNC
      - SFB13 BRCV COM_FUNC
      - SFB14 GET COM_FUNC
      - SFB15 PUT COM_FUNC
      - SFB16 PRINT COM_FUNC
      - SFB19 START COM_FUNC
      - SFB20 STOP COM_FUNC
      - SFB21 RESUME COM_FUNC
      - SFB22 STATUS COM_FUNC

-- عدادات تقوم بنفس وظيفة عدادات ال S7-200 .

-- LOAD : تضع PV داخل CV (فى الغالب فى UP و UPDOWN) نضع MARKER منعا ل syntax error.

-- لابد من وضع اسم أى data block على بلوكات FBأو SFB فى البرنامج.

System Function Blocks (SFB):



DB1

"TON"

EN ENO

... IN Q ...

PT ET

Double Word

Double Word

DB2

"TOF"

EN ENO

... IN Q ...

PT ET

Double Word

Double Word

PT= TIME(SEC) * 1000

- Libraries
  - stdlibs
  - Standard Library
    - Miscellaneous Blocks
    - TI-S7 Converting Blocks
    - PID Control Blocks
    - IEC Function Blocks
    - System Function Blocks
      - SFB0 CTU IEC_TC
      - SFB1 CTD IEC_TC
      - SFB2 CTUD IEC_TC
      - SFB3 TP IEC_TC
      - SFB4 TON IEC_TC
      - SFB5 TOF IEC_TC
      - SFB8 USEND COM_FUNC
      - SFB9 URCV COM_FUNC
      - SFB12 BSEND COM_FUNC
      - SFB13 BRCV COM_FUNC
      - SFB14 GET COM_FUNC
      - SFB15 PUT COM_FUNC
      - SFB16 PRINT COM_FUNC
      - SFB19 START COM_FUNC
      - SFB20 STOP COM_FUNC
      - SFB21 RESUME COM_FUNC
      - SFB22 STATUS COM_FUNC

EX.:

DB1

"CTU"

EN ENO

I0.0 — CU Q — Q0.0

I0.1 — R CV — MW2

MW0 — PV

Note:



3 -- C:\Program Files\Step7\s7proj\magdy3]

Options Window Help

< No Filter >

System data OB1 FC80 FC84 FC87 FC88 DB1

SFB0 SFB4

إذا استخدمت أى FC أو FB أو SFB أو ...... مع OB(ORGANIZATION BLOCK) فلا بد من تحديد كل هذه العناصر وعمل DOWNLOAD جماعى لها وإلا فإن لمبة SF سوف تضئ لأن البرنامج الرئيسى OB1 لا يعرف البلوكات الجديدة الموجودة بداخله بدون تحميلها معه.

Automatic Store:

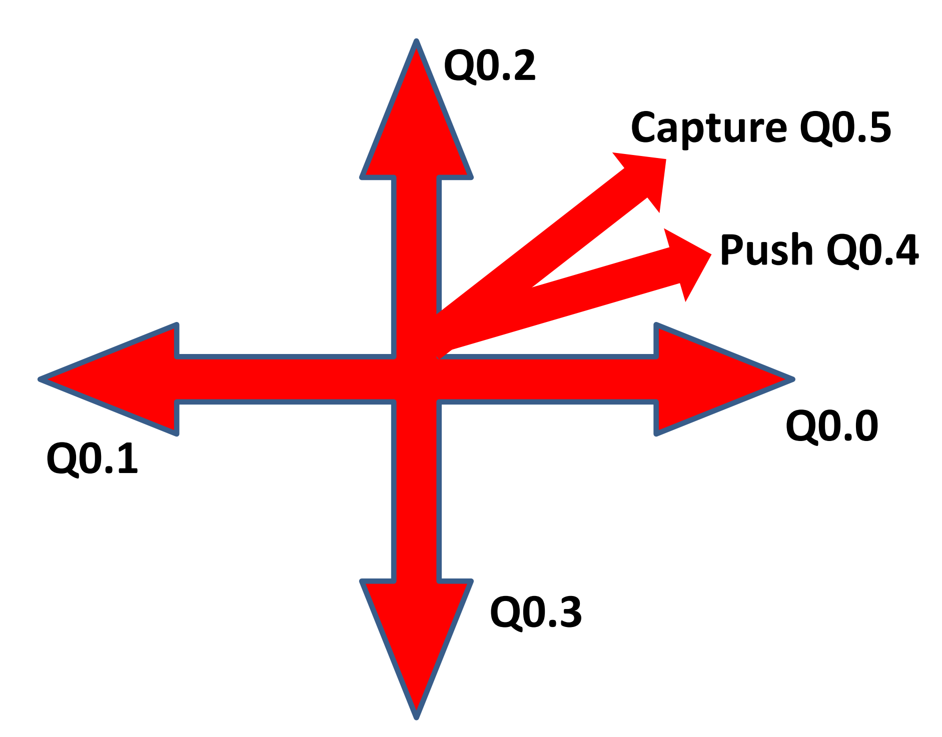


Automatic store:




```
i0.0 s1
i0.1 s2
i0.2 s3
i0.3 s4
i0.4 s5
i0.5 s6
i0.6 s7
i0.7 s8
i1.0 s9
i1.1 s10
i1.2 push end
i1.3 capture end
i1.4 on
i1.5 off
i1.6 order
i1.7 get
i2.0 random
i2.1 shift
```

```
q0.0 right
q0.1 left
q0.2 up
q0.3 down
q0.4 push
q0.5 capture
iw3  row
iw5  column
```



Automatic Store:



Order

الصف المطلوب

MW2

-1

العمود المطلوب

MW4

-1

Get

الصف المطلوب

IW3

BCD_I

العمود المطلوب

IW5

BCD_I

Random

الصف المطلوب

عدد الحركات فى اتجاه الصفوف

MW6

+1

MW10

العمود المطلوب

عدد الحركات فى اتجاه الأعمدة

MW8

+1

MW12

Shift

IW3

BCD_I

MW2

IW5

BCD_I

MW4

Automatic Store:



1	2	3	4	5	
M14.4	M14.3	M14.2	M14.1	M14.0	4
M15.1	M15.0	M14.7	M14.6	M14.5	3
M15.6	M15.5	M15.4	M15.3	M15.2	2
M16.3	M16.2	M16.1	M16.0	M15.7	1

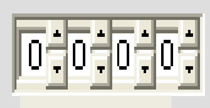
Z

-Y

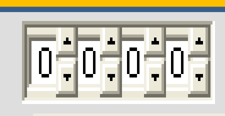
Y

M17.4 → INVALID POSITIONS
M17.5 → OUT OF RANGE





Row



Column













shift



Automatic Store :



Network 1 : Title:

I1.4 — I1.5 — M0.0 ( )

M0.0 (parallel to I1.4)

Network 2 : Title:

Block	IN1	IN2
CMP >I	MW2	4
CMP >I	MW4	5
CMP >I	MW6	4
CMP >I	MW8	5
CMP <=I	MW2	0
CMP <=I	MW4	0
CMP <=I	MW6	0
CMP <=I	MW8	0

M17.5 ( )

Automatic Store :



Network 3 : Title:

M17.0
M17.1
M17.2
M17.3
M17.4
( )

Network 4 : Title:

I1.6
M17.4
CMP <>I
MW2 — IN1
0 — IN2
M0.1
M0.2
M0.3
M17.5
M0.1
( )

Network 5 : Title:

I1.7
M17.4
M0.2
M0.1
M0.3
M17.5
M0.2
( )

Network 6 : Title:

I2.0
M17.4
M0.3
M0.1
M0.2
M17.5
M0.3
( )

Network 7 : Title:

I1.6
M26.4
(P)
MOVE
EN ENO
MW2 — IN OUT — MW6
MOVE
EN ENO
MW4 — IN OUT — MW8

Automatic Store :



Network 8 : Title:

I0.0
M0.1
M0.4
M0.2
M0.3
I0.1
I0.2
I0.3
I0.4
I0.5

Network 9 : Title:

I0.1
CMP ==I
MW8 IN1
1 IN2
M0.5
I0.2
CMP ==I
MW8 IN1
2 IN2
I0.3
CMP ==I
MW8 IN1
3 IN2
I0.4
CMP ==I
MW8 IN1
4 IN2
I0.5
CMP ==I
MW8 IN1
5 IN2
I0.6
I0.7
I1.0
I1.1

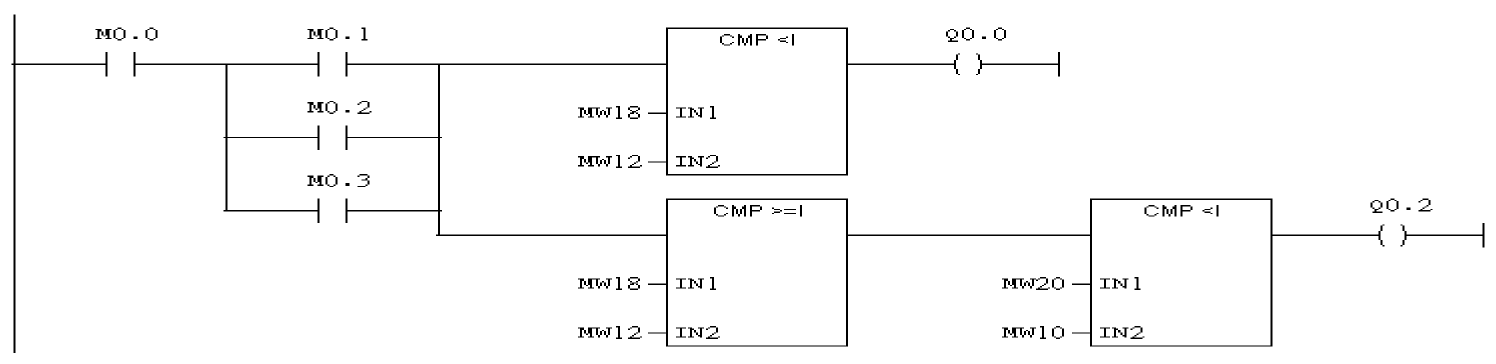
Automatic Store :



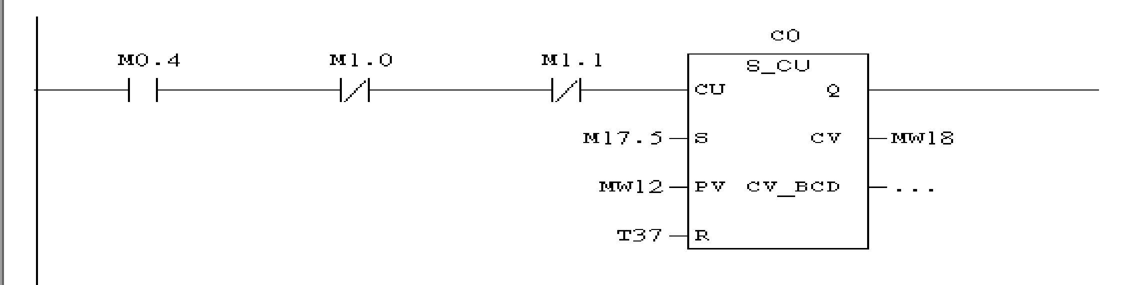
Network 10 : Title:



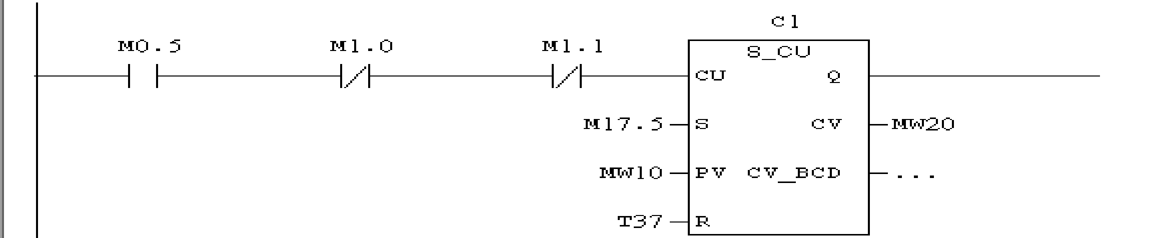
Network 11 : Title:



Network 12 : Title:



Network 13 : Title:



Automatic Store :



Network 14 : Title:

M0.0 — M0.1 / M0.2 / M0.3 — CMP >=I (IN1: MW20, IN2: MW10) — M0.2 (NC) — M1.0 (NC) — Q0.4 ( )

M0.2 — M1.1 (NC) — Q0.5 ( )

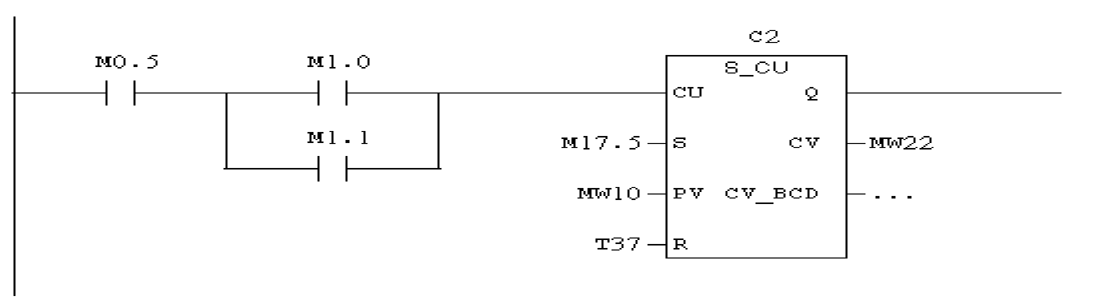
Network 15 : Title:

I1.2 — M1.0 (S)

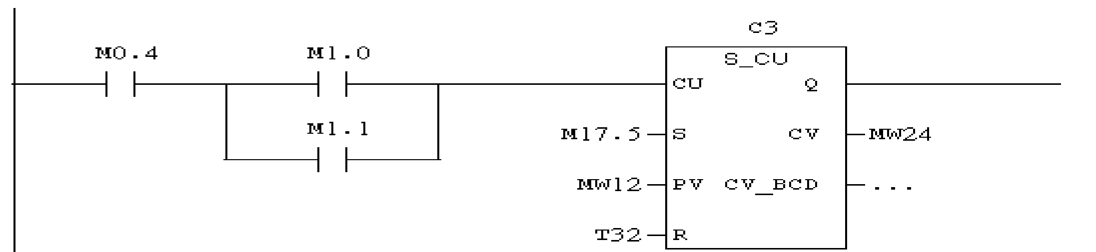
Network 16 : Title:

I1.3 — M1.1 (S)

Network 17 : Title:



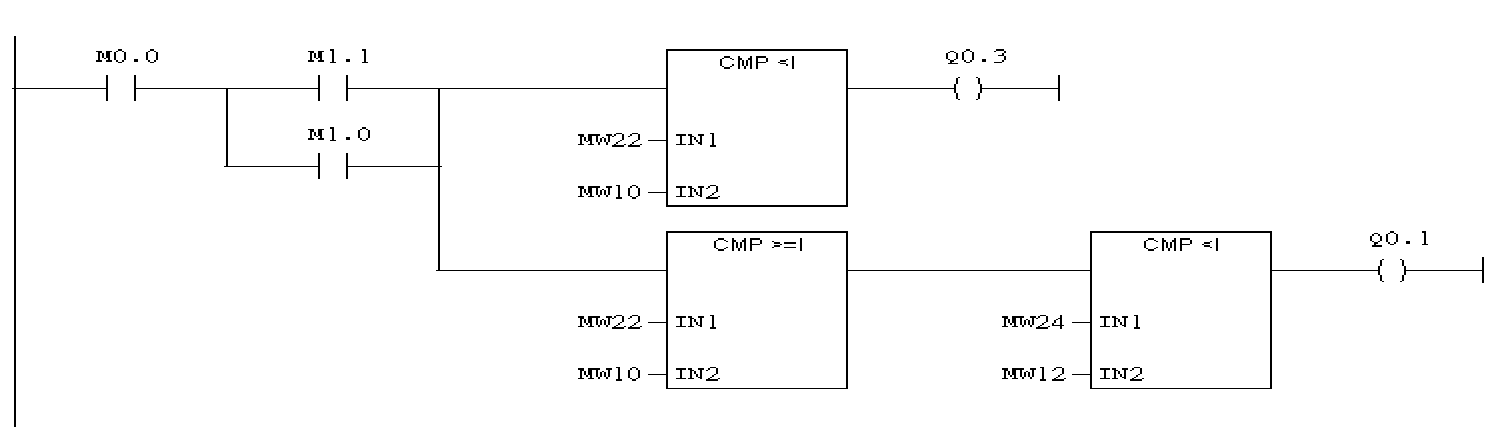
Network 18 : Title:



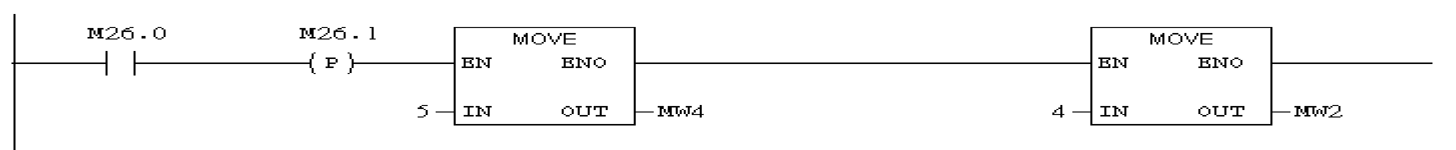
Automatic Store :



Network 19 : Title:

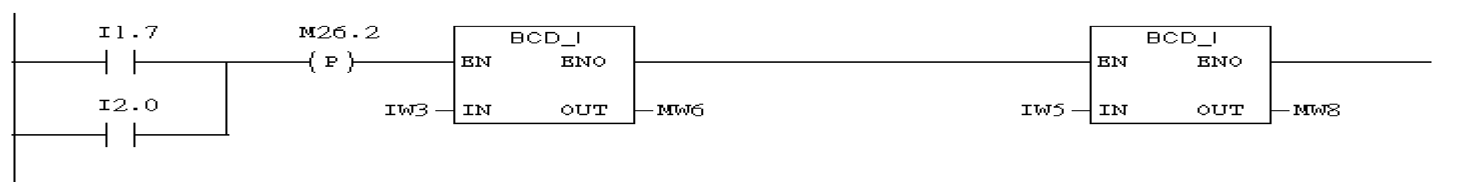


Network 20 : Title:



Network 21 : Title:

Network 22 : Title:

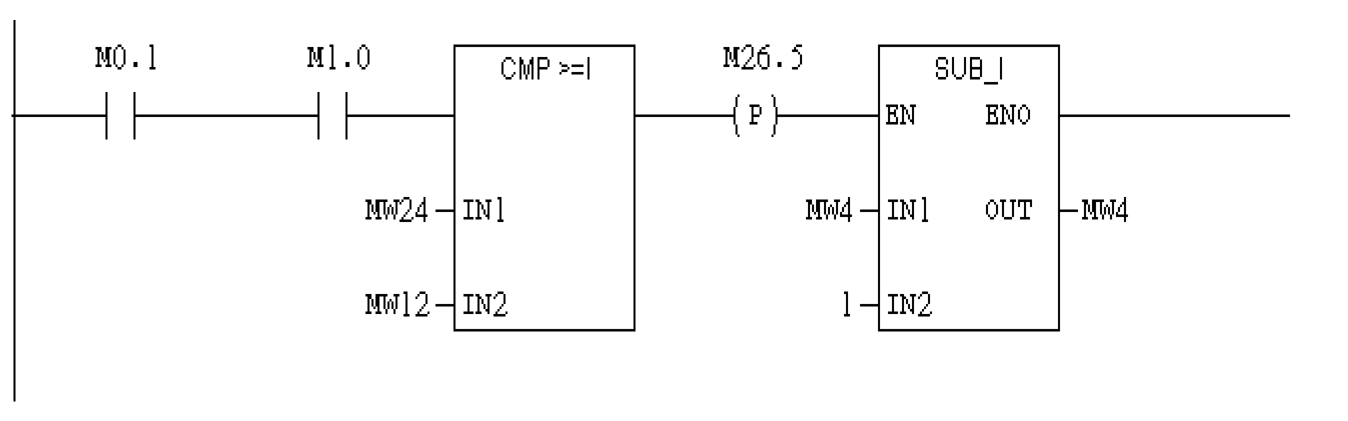


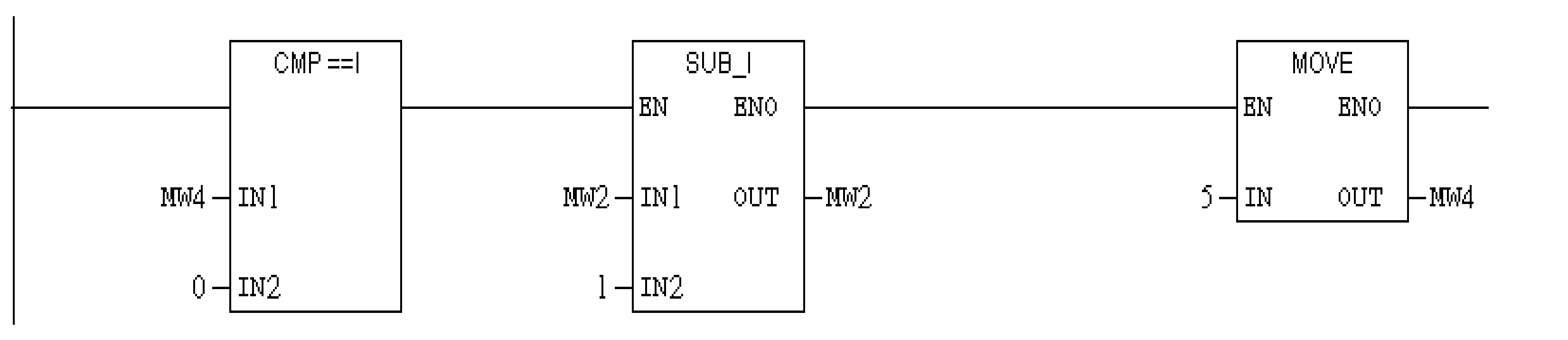
Network 23 : Title:



Automatic Store :







Automatic Store :



Network 26 : Title:

CMP ==I
MW6 — IN1
4 — IN2

CMP ==I
MW8 — IN1
5 — IN2
M1.0 M14.0 (S)
M1.1 M14.0 (R)

CMP ==I
MW8 — IN1
4 — IN2
M1.0 M14.1 (S)
M1.1 M14.1 (R)

CMP ==I
MW8 — IN1
3 — IN2
M1.0 M14.2 (S)
M1.1 M14.2 (R)

CMP ==I
MW8 — IN1
2 — IN2
M1.0 M14.3 (S)
M1.1 M14.3 (R)

CMP ==I
MW8 — IN1
1 — IN2
M1.0 M14.4 (S)
M1.1 M14.4 (R)

Automatic Store :



Network 27 : Title:

CMP ==I
MW6 — IN1
3 — IN2

CMP ==I
MW8 — IN1
5 — IN2
M1.0 — M14.5 (S)
M1.1 — M14.5 (R)

CMP ==I
MW8 — IN1
4 — IN2
M1.0 — M14.6 (S)
M1.1 — M14.6 (R)

CMP ==I
MW8 — IN1
3 — IN2
M1.0 — M14.7 (S)
M1.1 — M14.7 (R)

CMP ==I
MW8 — IN1
2 — IN2
M1.0 — M15.0 (S)
M1.1 — M15.0 (R)

CMP ==I
MW8 — IN1
1 — IN2
M1.0 — M15.1 (S)
M1.1 — M15.1 (R)

Automatic Store :



Network 28 : Title:

Comparator	IN1	IN2	Contact (S)	Coil	Contact (R)	Coil
CMP ==I	MW6	2				
CMP ==I	MW8	5	M1.0	M15.2 (S)	M1.1	M15.2 (R)
CMP ==I	MW8	4	M1.0	M15.3 (S)	M1.1	M15.3 (R)
CMP ==I	MW8	3	M1.0	M15.4 (S)	M1.1	M15.4 (R)
CMP ==I	MW8	2	M1.0	M15.5 (S)	M1.1	M15.5 (R)
CMP ==I	MW8	1	M1.0	M15.6 (S)	M1.1	M15.6 (R)

Automatic Store :



Network 29 : Title:

CMP ==I
MW6 — IN1
1 — IN2

CMP ==I
MW8 — IN1
5 — IN2

M1.0 M15.7 (S)
M1.1 M15.7 (R)

CMP ==I
MW8 — IN1
4 — IN2

M1.0 M16.0 (S)
M1.1 M16.0 (R)

CMP ==I
MW8 — IN1
3 — IN2

M1.0 M16.1 (S)
M1.1 M16.1 (R)

CMP ==I
MW8 — IN1
2 — IN2

M1.0 M16.2 (S)
M1.1 M16.2 (R)

CMP ==I
MW8 — IN1
1 — IN2

M1.0 M16.3 (S)
M1.1 M16.3 (R)

Automatic Store :



Network 30 : Title:

CMP ==I
MW6 — IN1
4 — IN2

CMP ==I
MW8 — IN1
5 — IN2
M14.0

M17.0
( )

CMP ==I
MW8 — IN1
4 — IN2
M14.1

CMP ==I
MW8 — IN1
3 — IN2
M14.2

CMP ==I
MW8 — IN1
2 — IN2
M14.3

CMP ==I
MW8 — IN1
1 — IN2
M14.4

Automatic Store :



Network 31 : Title:

CMP ==I
MW6 — IN1
3 — IN2

CMP ==I
MW8 — IN1
5 — IN2
M14.5
M17.1
( )

CMP ==I
MW8 — IN1
4 — IN2
M14.6

CMP ==I
MW8 — IN1
3 — IN2
M14.7

CMP ==I
MW8 — IN1
2 — IN2
M15.0

CMP ==I
MW8 — IN1
1 — IN2
M15.1

Automatic Store :



Network 32 : Title:

Comparator	IN1	IN2	Contact	Output
CMP ==I	MW6	2		
CMP ==I	MW8	5	M15.2	M17.2 ( )
CMP ==I	MW8	4	M15.3	
CMP ==I	MW8	3	M15.4	
CMP ==I	MW8	2	M15.5	
CMP ==I	MW8	1	M15.6	

Automatic Store :



Network 33 : Title:

Compare	IN1	IN2	Contact
CMP ==I	MW6	1	
CMP ==I	MW8	5	M15.7
CMP ==I	MW8	4	M16.0
CMP ==I	MW8	3	M16.1
CMP ==I	MW8	2	M16.2
CMP ==I	MW8	1	M16.3

Output coil: M17.3

Automatic Store :



Network 34 : Title:

DATA BLOCK (DB):



DB1 _ AREA

7	6	5	4	3	2	1	0	
							DB1.DBX0.0	0
								1
								2
								3
								- - -
								8191

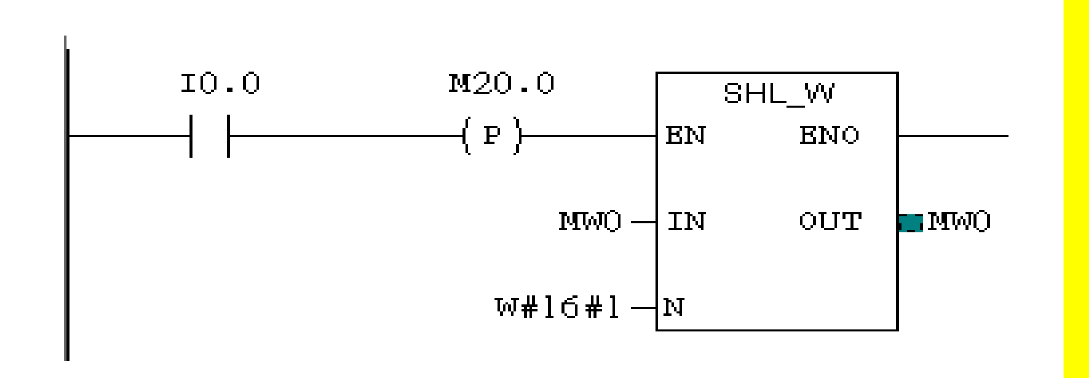
DB1.DBW0

DB1.DBD0

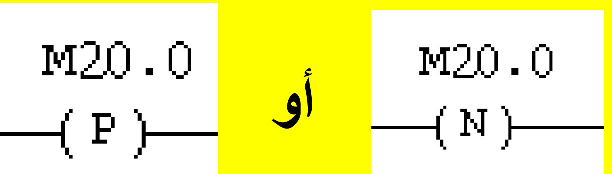
BIT	DB [DB ORDER] .DBX [BYTE] . [BIT]	DB1.DBX0.0
BYTE	DB[DB ORDER] . DBB [BYTE ORDER]	DB1.DBB0
WORD	DB[DB ORDER] .DBW[WORD ORDER]	DB1.DBW0
DOUBLE WORD	DB[DB ORDER].DBD[DOUBLE WORD ORDER]	DB1.DBD0

SHIFT /ROTATE :

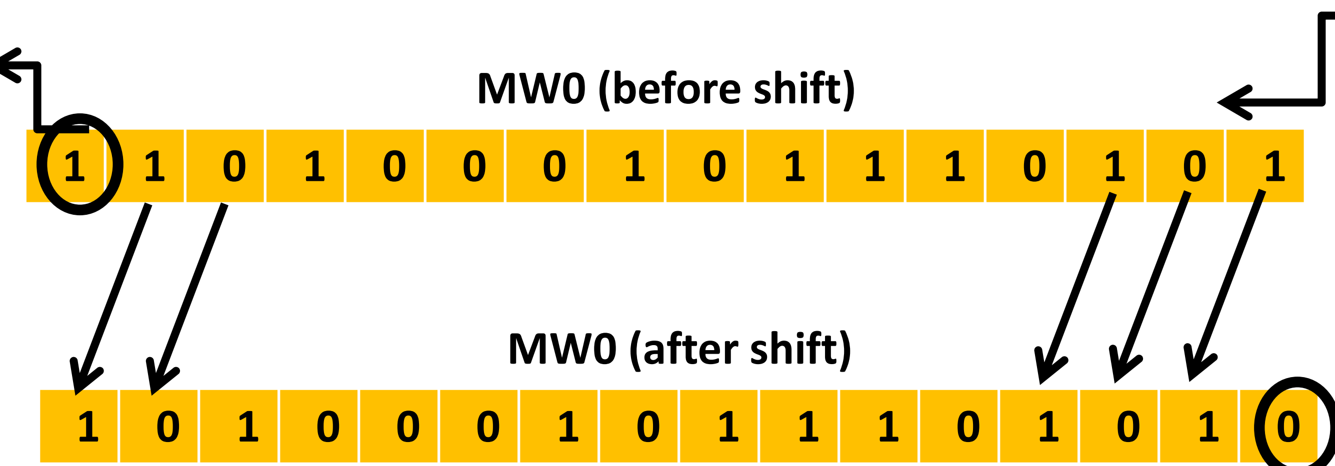




SOURCE = DESTINATION إذا كان
فلا بد من وضع أحد الأمرين:

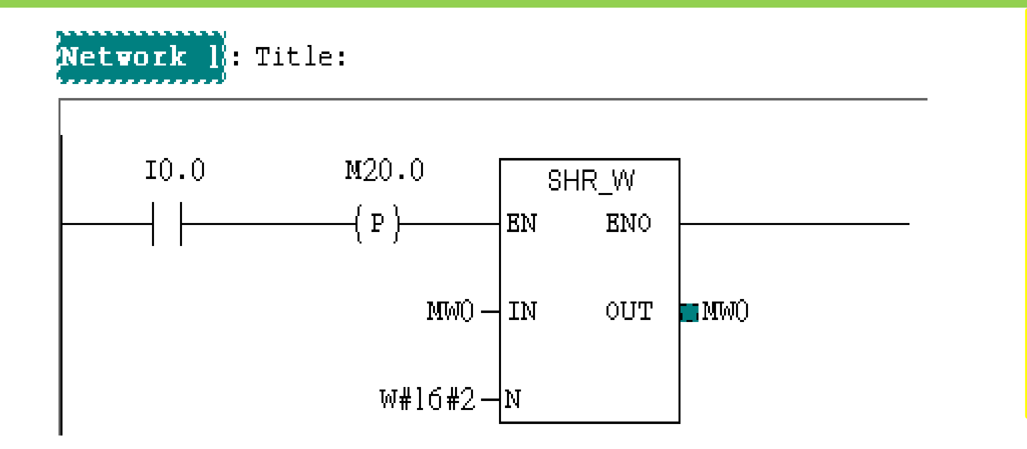


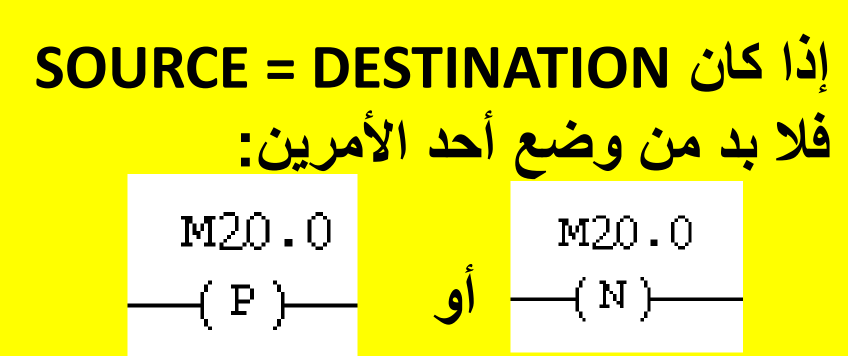
IN	Source (address/ value) suitable to type
N	No. of shifts per scan
OUT	Destination (address) suitable to type



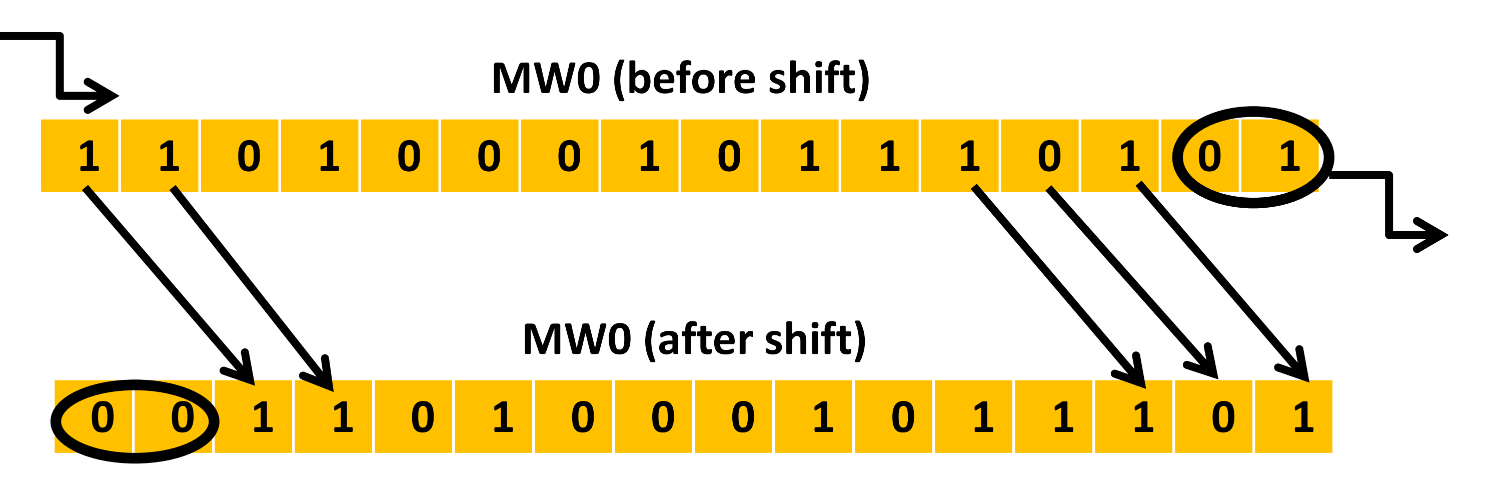
SHIFT /ROTATE :





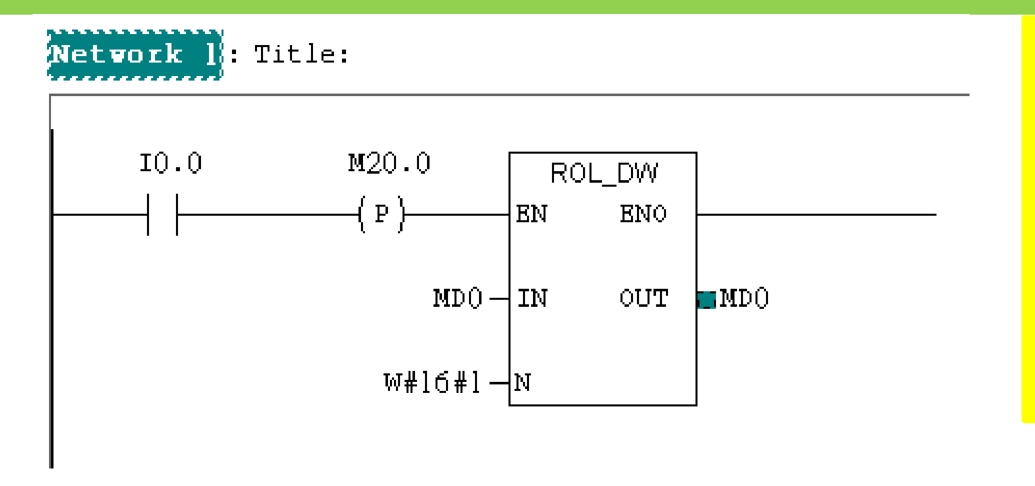


IN	Source (address/ value) suitable to type
N	No. of shifts per scan
OUT	Destination (address) suitable to type

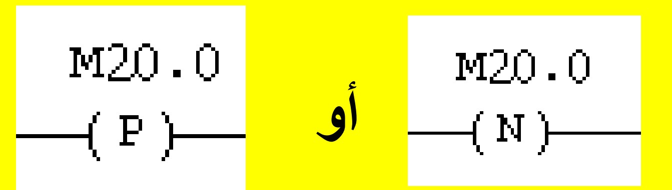


SHIFT /ROTATE :

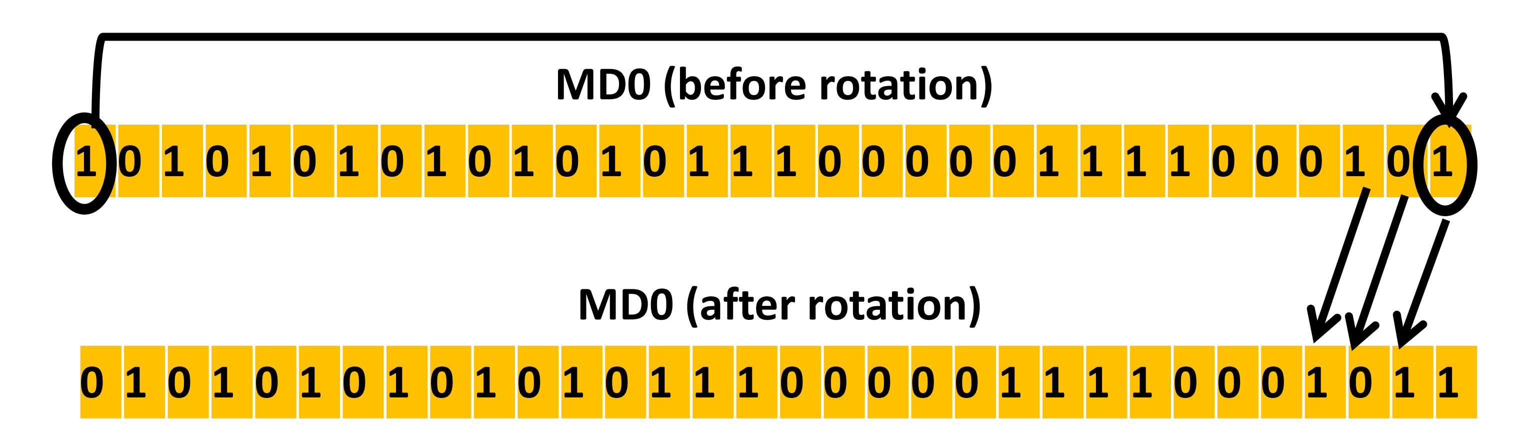




SOURCE = DESTINATION إذا كان
فلا بد من وضع أحد الأمرين :

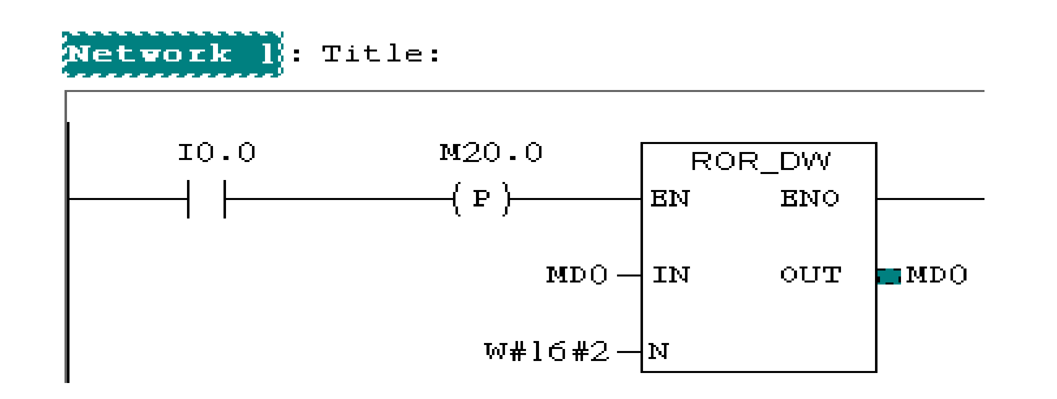


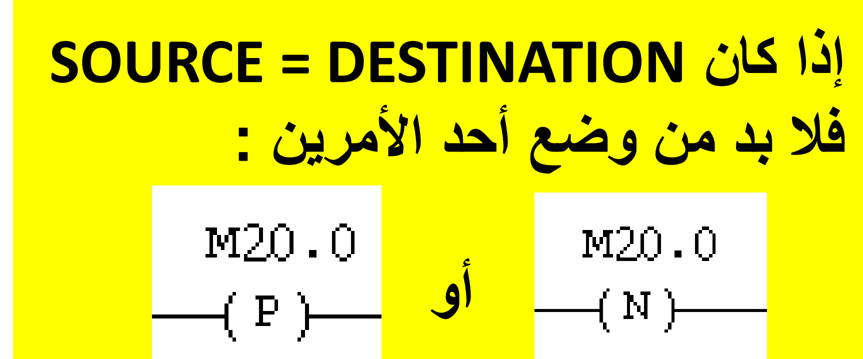
IN	Source (address/ value) suitable to type
N	No. of shifts per scan
OUT	Destination (address) suitable to type



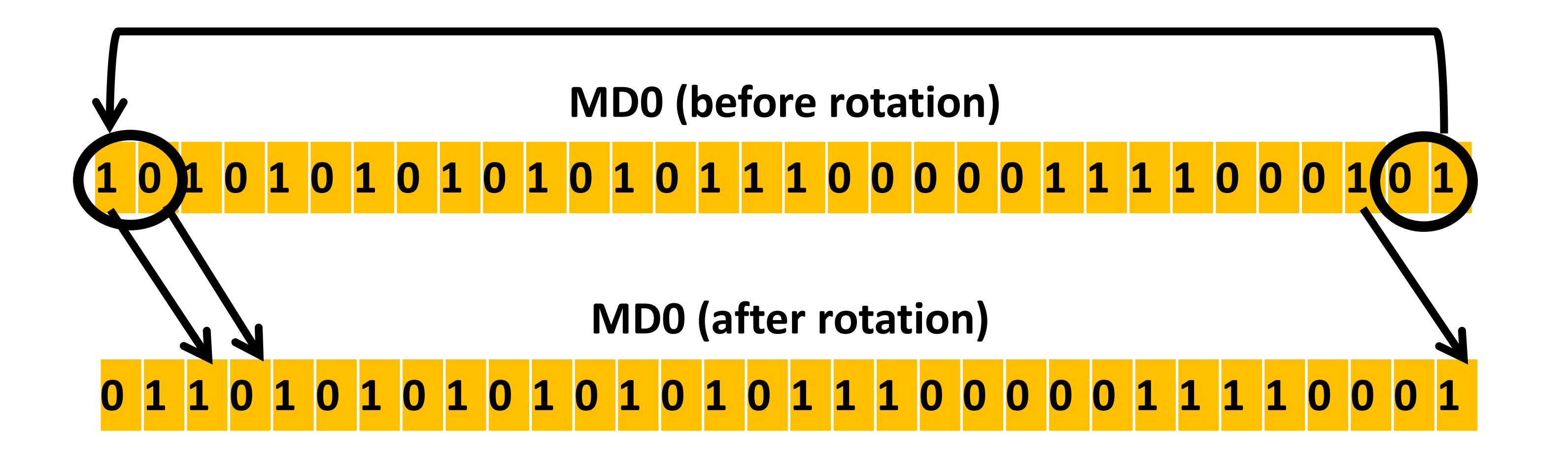
SHIFT /ROTATE :

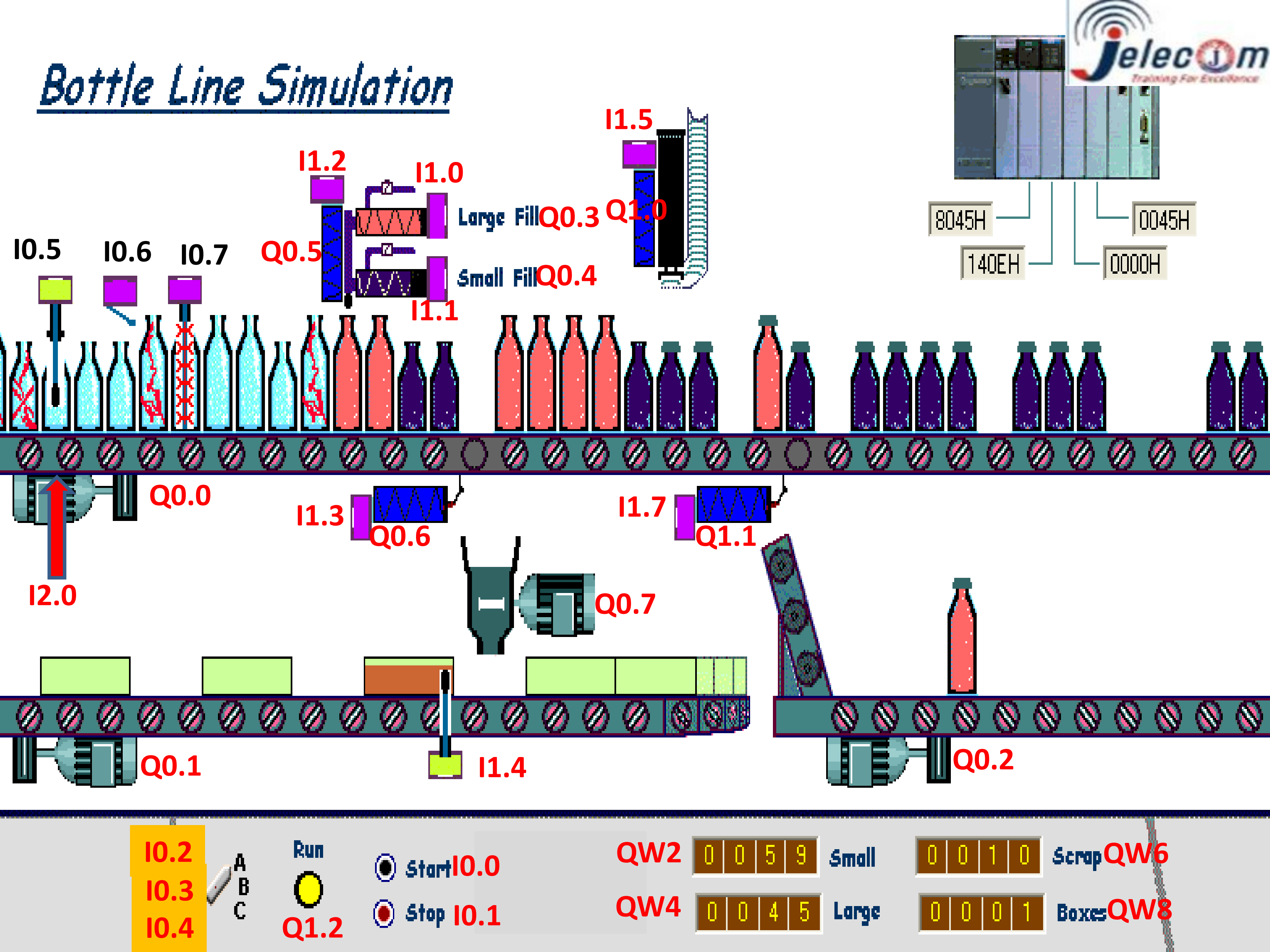






IN	Source (address/ value) suitable to type
N	No. of shifts per scan
OUT	Destination (address) suitable to type





Bottle Line Simulation
I1.5
I1.2
I1.0
Large Fill
Q0.3
Q1.0
Q0.5
Small Fill
Q0.4
I1.1
I0.5
I0.6
I0.7
8045H
0045H
140EH
0000H
Q0.0
I1.3
Q0.6
I1.7
Q1.1
I2.0
Q0.7
Q0.1
I1.4
Q0.2
I0.2
I0.3
I0.4
A
B
C
Run
Q1.2
Start I0.0
Stop I0.1
QW2
0059
Small
QW4
0045
Large
0010
Scrap QW6
0001
Boxes QW8

Bottle line :

Jelecom
Training For Excellence

Bottle line:

1- Filling large/small bottle is after 7 shifts from sensor i0.6
2- Dropping broken bottle is after 9 shifts from sensor i0.7
3- Covering large/small bottle is after 17 shifts from sensor i0.6
4- dropping large/small bottle is after 21 shifts from i0.6
5- mode A: -one container has one broken bottle.
-large bottle is dropped after 21 shifts from i0.6

mode B: - one container has --> large bottle has 15% from container size
--> small bottle has 5% from container size
--large bottle is dropped after 21 shifts from i0.6

mode C: - one container has one bottle
- small bottle is dropped after 21 shifts from i0.6

```
i0.0 on
i0.1 off
i0.2 A
i0.3 B
i0.4 C
i0.5 all sensor
i0.6 large sensor
i0.7 broken sensor
i1.0 large end
i1.1 small end
i1.2 fill tube end
i1.3 drop broken end
i1.4 belt2 sensor
i1.5 large end
i1.6 small end
i1.7 drop large end
i2.0 steps sensor
q0.0 belt1
q0.1 belt2
q0.2 belt3
q0.3 fill large
q0.4 fill small
q0.5 fill tube
q0.6 drop broken
q0.7 miller
q1.0 cover
q1.1 drop large/small
q1.2 run
qw2 large
qw4 small
qw6 broken
qw8 boxes
```

Bottle line :



Network 1 Network Title

I0.0 Q0.0 (S) 1

QB0

0	0	1	0	0	1	0	1

Network 2

I0.1 P SHL_B EN ENO QB0 IN OUT QB0 1 N

SET

-- أمر SET يضع ال 1 ولن يتحول إلى 0 إلا إذا قام ال SHIFT بتحريكه لليسار.
-- كل أمر SET جديد يضع 1 فى نفس الموضع ويتحرك ال 1 من موضعه بال SHIFT ويسمح بعمل SETجديد بحيث نستطيع أن نحدد مكان 1 القديم والجديد.

Bottle line :

Jelecon
Training For Excellence

All — MD1

MB1								MB2								MB3								MB4							
7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

Store bottle

large — MD5

MB5								MB6								MB7								MB8							
7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

Drop large
Cover large
Fill large
Store large

Small — MD9

MB9																MB11								MB12							
7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

Cover small
Fill small
Store small

Broken — MD13

MB13								MB14								MB15								MB16							
7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

cancel broken
Drop broken
Store broken



عمليات متعددة على خط إنتاج:

Bottle line :



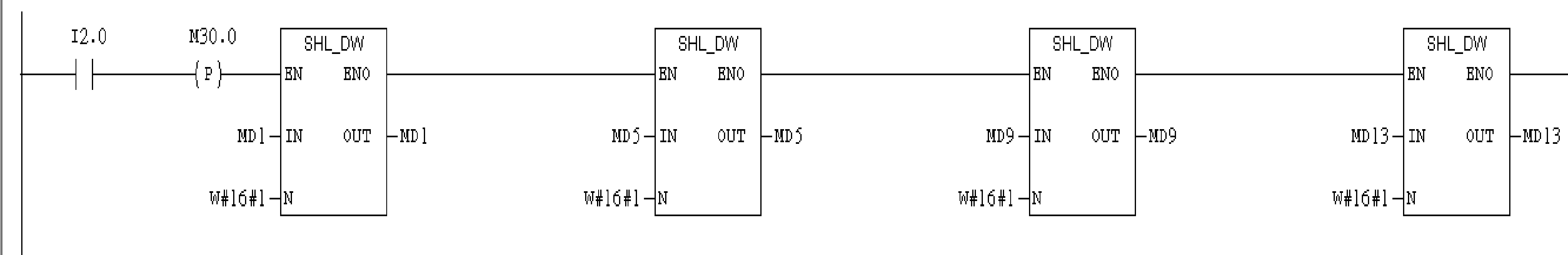
Network 1 : Title:

I0.0 I0.1 M0.0
M0.0 Q0.2
Q0.7
Q1.2

Network 2 : Title:

M0.0 I2.0 Q0.1 M21.0 Q0.0
M21.1

Network 3 : Title:



Network 4 : Title:



Bottle line :



Network 5 : Title:

M4.2 I0.6 M8.2 (S)

I0.6 M12.2 (S)

Network 6 : Title:

M0.0 Q0.0 M15.1 M7.1 M0.1 Q0.3 ( )

M11.1 M0.2 Q0.4 ( )

Network 7 : Title:

I1.0 M0.1 (S)

Network 8 : Title:

I1.1 M0.2 (S)

Network 9 : Title:

Q0.3 M0.3 Q0.5 ( )

Q0.4

Network 10 : Title:

I1.2 M0.3 (S)

Bottle line :



Network 11 : Title:

I0.7 —| |— M16.4 —(S)

Network 12 : Title:

M0.0 —| |— Q0.0 —|/|— M15.5 —| |— M0.4 —|/|— Q0.6 —( )

Network 13 : Title:

I1.3 —| |— M0.4 —(S)

Network 14 : Title:

M15.6 —| |— M7.6 —| |— M7.6 —(R)

M11.6 —| |— M11.6 —(R)

Network 15 : Title:

M0.0 —| |— Q0.0 —|/|— M6.3 —| |— M0.5 —|/|— Q1.0 —( )

M10.3 —| |— M0.6 —|/|

Network 16 : Title:

I1.5 —| |— M0.5 —(S)

Network 17 : Title:

I1.6 —| |— M0.6 —(S)

Bottle line :



Network 18 : Title:

M0.0 Q0.0 I0.4 M6.7 M0.7 Q1.1
I0.4 M10.7

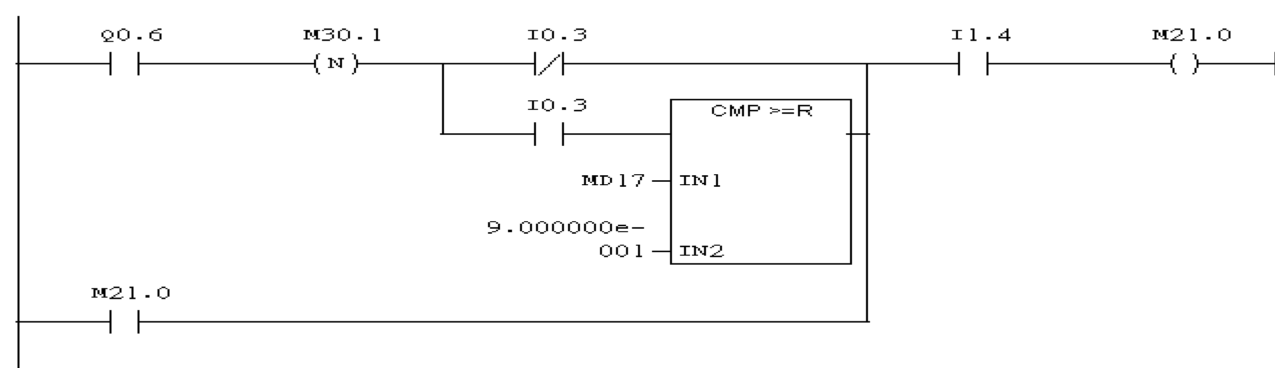
Network 19 : Title:

I1.7 M0.7
(S)

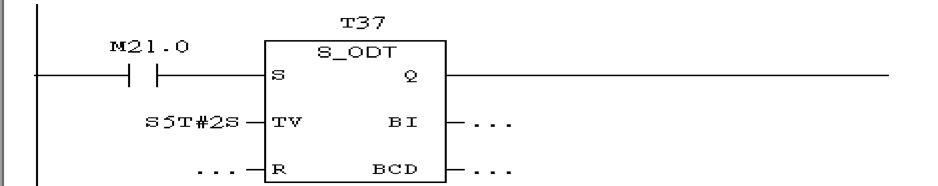
Network 20 : Title:

M0.0 I1.4 Q0.1
T37

Network 21 : Title:



Network 22 : Title:



Bottle line :



Network 23 : Title:

- Q0.6 — M30.2 (P) — M7.5 — ADD_R (EN, ENO; IN1: 1.500000e-001; IN2: MD17; OUT: MD17)
- M11.5 — ADD_R (EN, ENO; IN1: 5.000000e-002; IN2: MD17; OUT: MD17)

Network 24 : Title:

- Q0.1 — MOVE (EN, ENO; IN: 0.000000e+000; OUT: MD17)

Network 25 : Title:

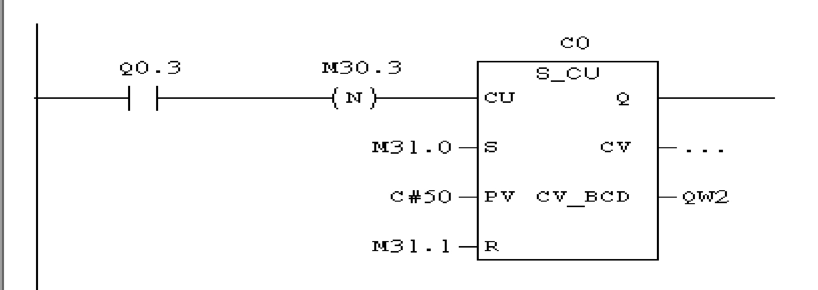
- Q0.0 — M0.1 (R), M0.2 (R), M0.3 (R), M0.4 (R), M0.5 (R), M0.6 (R)

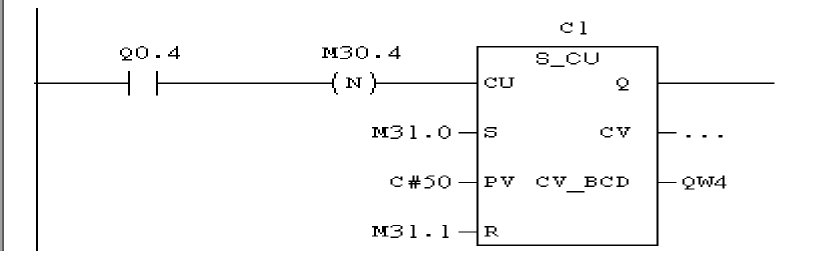
Network 26 : Title:

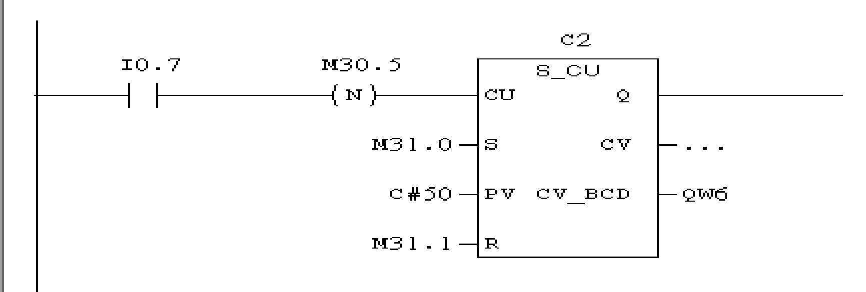
- I2.0 — Q0.3 (/) — Q0.4 (/) — Q0.6 (/) — Q1.1 (/) — Q1.0 (/) — M21.1 ( )

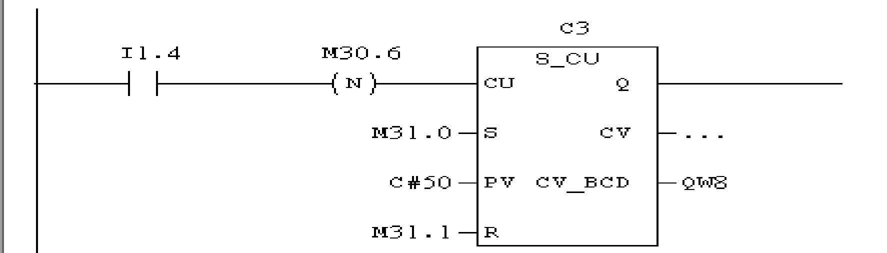
Bottle line :


Jelecom
Training For Excellence


Network 27 : Title:
C0
Q0.3
M30.3
N
S_CU
CU
Q
M31.0
S
CV
...
C#50
PV
CV_BCD
QW2
M31.1
R

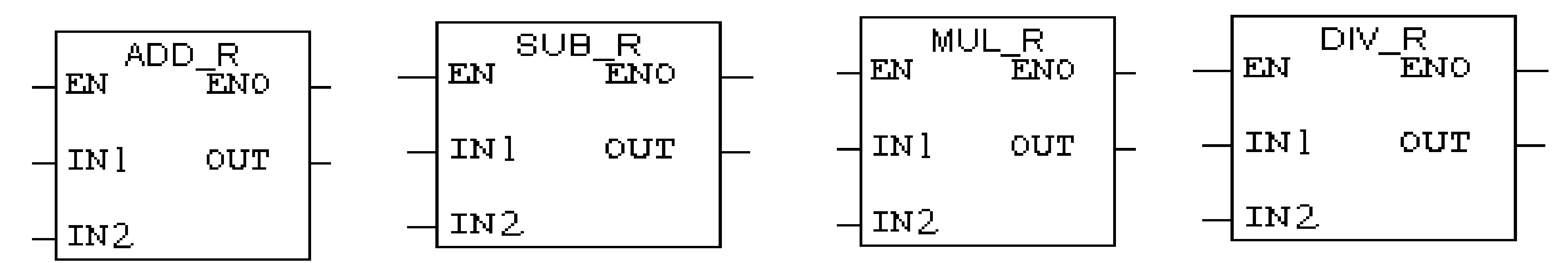

Network 28 : Title:
C1
Q0.4
M30.4
N
S_CU
CU
Q
M31.0
S
CV
...
C#50
PV
CV_BCD
QW4
M31.1
R


Network 29 : Title:
C2
I0.7
M30.5
N
S_CU
CU
Q
M31.0
S
CV
...
C#50
PV
CV_BCD
QW6
M31.1
R


Network 30 : Title:
C3
I1.4
M30.6
N
S_CU
CU
Q
M31.0
S
CV
...
C#50
PV
CV_BCD
QW8
M31.1
R



FLOATING POINT:

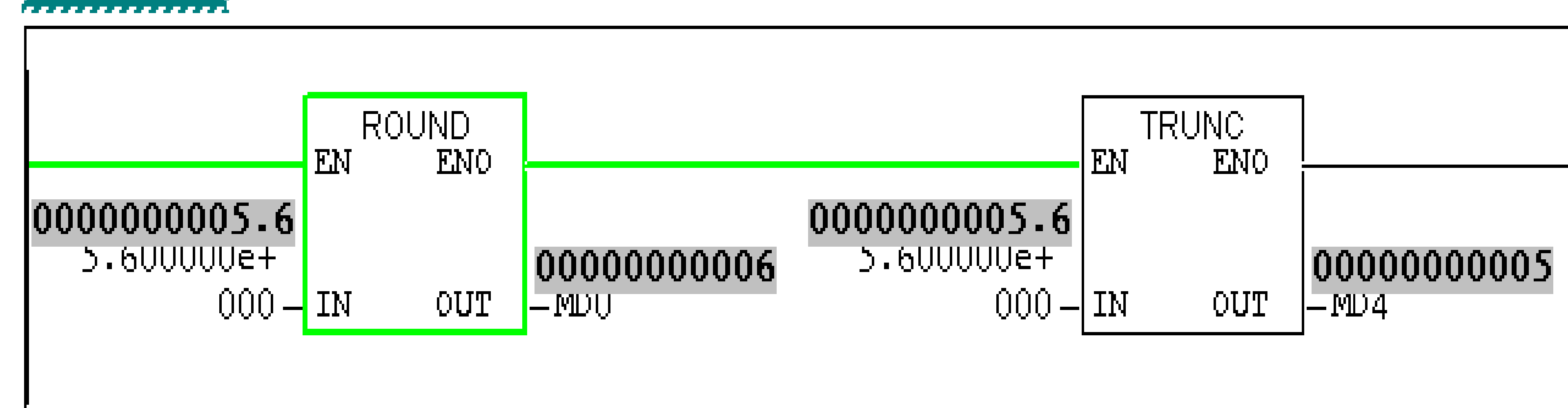


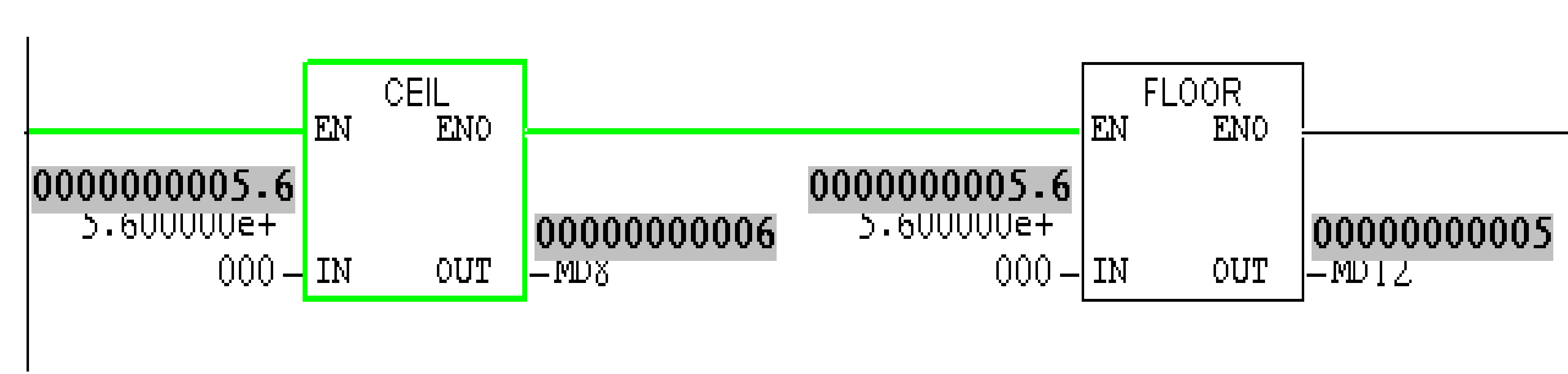
كما فى INTEGER FUNCTION مع نفس الحالات الخاصة ولكن الفارق هو أن نوع المدخلات والمخرجات لهذه البلوكات هو DOUBLE WORD .

TRUNC (EN, ENO, IN, OUT)	ROUND (EN, ENO, IN, OUT)	CEIL (EN, ENO, IN, OUT)	FLOOR (EN, ENO, IN, OUT)
استئصال الجزء الكسرى من الرقم	تقريب الرقم الكسرى لأقرب رقم صحيح	تقريب الرقم الكسرى لأقرب رقم صحيح للأعلى	تقريب الرقم الكسرى لأقرب رقم صحيح للأسفل

FLOATING POINT (FROM RUN TIME SCREEN):





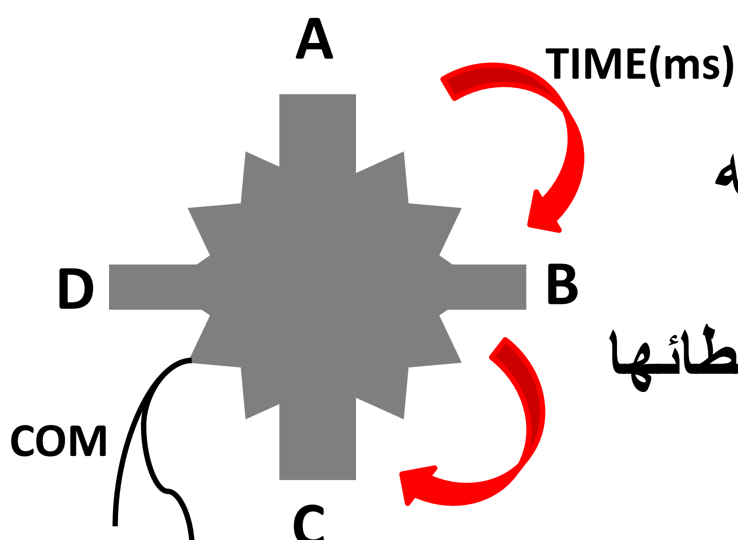


STEPPER MOTOR:



STEPPER MOTOR:





:FORWARD

اعطاء الاشارة إلي A وبعد زمن قطع الاشارة عنه واعطائها إلى B وبعد زمن قطع الاشارةعنه واعطائها إلى C وبعد زمن قطع الاشارة عنه واعطائها إلى D

:REVERSE

اعطاء الاشارة إلي A وبعد زمن قطع الاشارة عنه واعطائها إلى D وبعد زمن قطع الاشارةعنه واعطائها إلى C وبعد زمن قطع الاشارة عنه واعطائها إلى B

:SPEED CONTROL

كلما كان الزمن كبيرا كلما كانت السرعة أقل وكلما كان الزمن صغيرا كلما كانت السرعة أكبر.

CONTROL FOR UNIPOLAR STEPPER MOTOR:



A

TIME(ms)

D B

COM

C

-- --

L +

موحد للجهد

N - -

+

A B C D

IL Q0.0 Q0.1 Q0.2 Q0.3 N L

QB0

IM I0.0 I0.1 I0.2 I0.3 I0.4 M L+

ONF ONR OFF DECREASE INCREASE

output transistor يفضل أن يكون ال plc له

CONTROL ON UNIPOLAR STEPPER MOTOR:

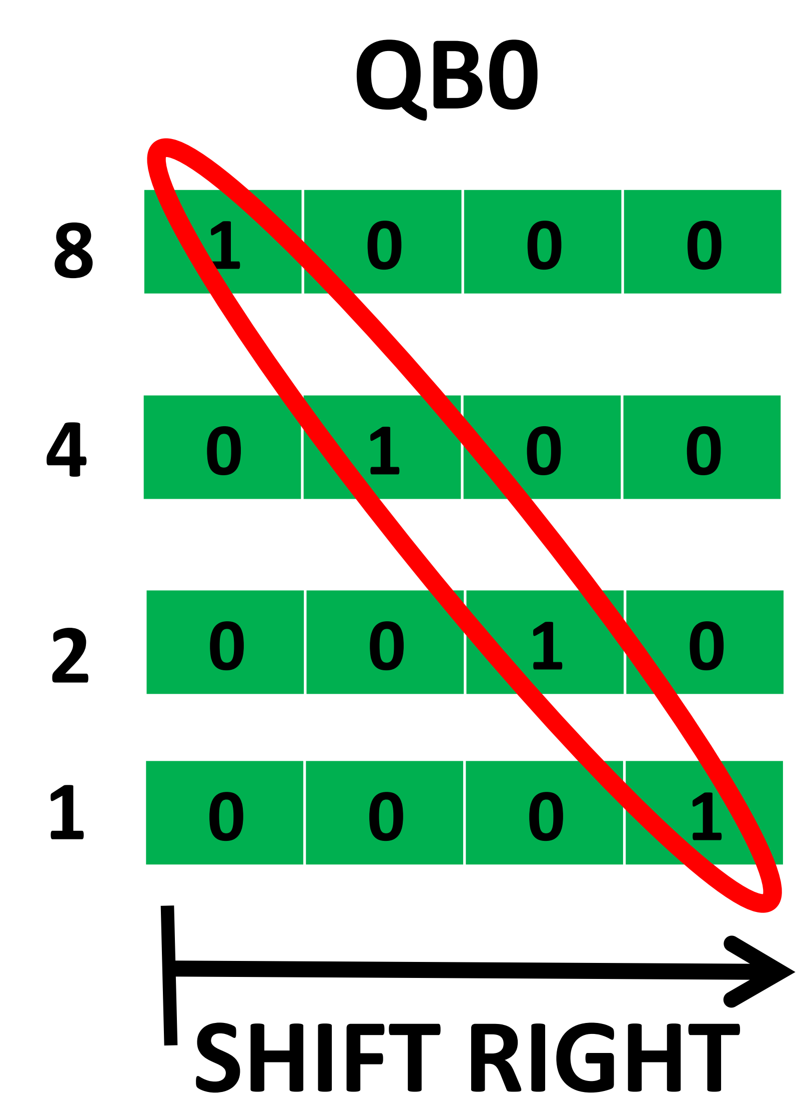


QB0

0	0	0	1	1
0	0	1	0	2
0	1	0	0	4
1	0	0	0	8

SHIFT LEFT

FORWARD



REVERSE

CONTROL ON UNIPOLAR STEPPER MOTOR:



TIME = RESOLUTION *PT

PT = TIME (SECONDS) * 10 $\rightarrow$ RES.=100MS

MW4 = [VW400(MILLISECONDS) /1000]*10

MW4 = VW400 / 100

SM0.0

DIV_I

EN ENO

VW400 IN1 OUT MW4

+100 IN2

T37

IN TON

MW4 PT 100 ms

CONTROL ON UNIPOLAR STEPPER MOTOR:



Network 1 Network Title

I0.0 I0.2 M0.1 / M0.0 ( )

M0.0

Network 2

I0.1 I0.2 M0.0 / M0.1 ( )

M0.1

Network 3

SM0.1 MOV_W EN ENO

+100 IN OUT VW400

Network 4

M0.0 / M0.1 / MOV_B EN ENO

0 IN OUT QB0

Network 5

M0.0 P MOV_B EN ENO

1 IN OUT QB0

T37 IN TON

MW4 PT 100 ms

Network 6

M0.0 T37 T38 / P SHL_B EN ENO

QB0 IN OUT QB0

1 N

T38 IN TON

MW4 PT 100 ms

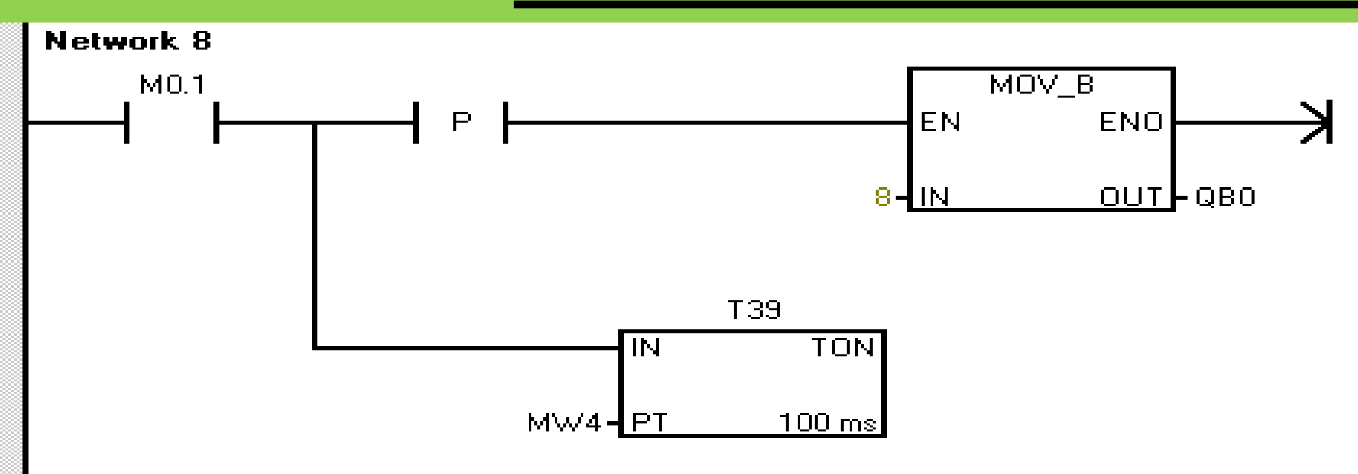
Network 7

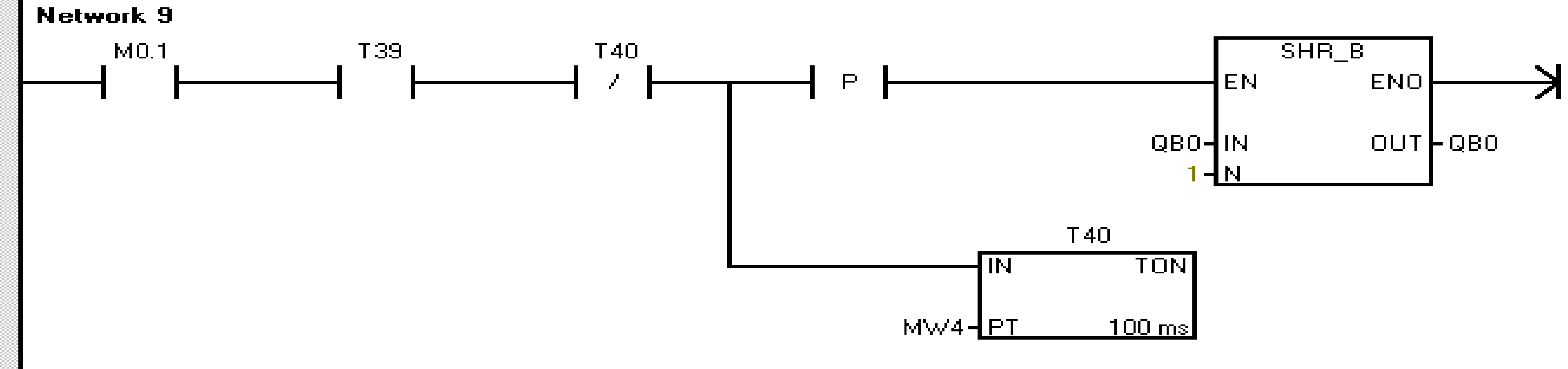
M0.0 QB0 ==B 16 MOV_B EN ENO

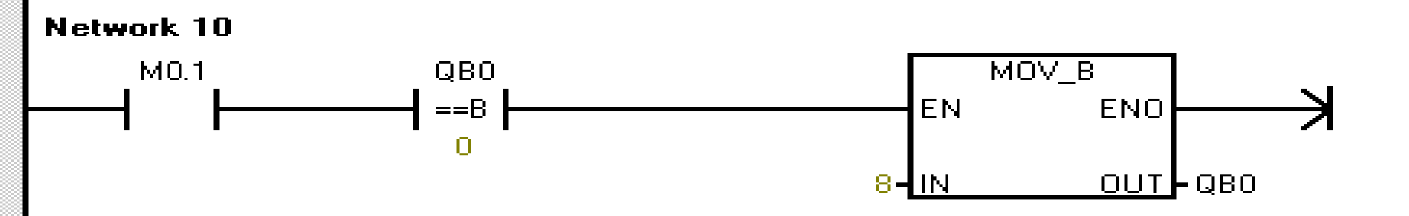
1 IN OUT QB0

CONTROL ON UNIPOLAR STEPPER MOTOR:









CONTROL ON UNIPOLAR STEPPER MOTOR:



Network 11

I0.3 — P — VW400 <I +1000 — ADD_I

ADD_I
EN ENO
+100 — IN1 OUT — VW400
VW400 — IN2

Network 12

I0.4 — P — VW400 >I +100 — SUB_I

SUB_I
EN ENO
VW400 — IN1 OUT — VW400
+100 — IN2

Network 13

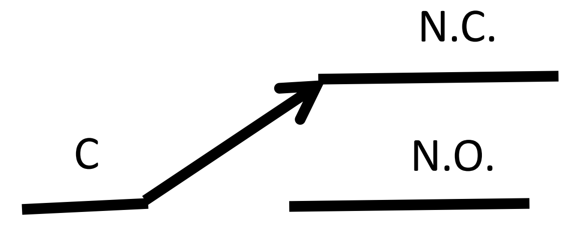
SM0.0 — DIV_I

DIV_I
EN ENO
VW400 — IN1 OUT — MW4
+100 — IN2

Analog in PLC:



DIGITAL (SWITCH)



1	CONTACT CHANGE
0	CONTACT BACK

EX.:

Digital Temperature sensor



ANALOG (Variable signal)

NON ELECTRIC SIGNAL → Transducer → ELECTRIC SIGNAL V , I

EX.:

Analog Temperature sensor (THERMOCOUPLE)



Analog in PLC SIEMENS S7-200:



- Channel A: 0-10V
- Channel B: Not used,
  so connect you B+ to B-
- Channel C: 0-20 mA signal from an active sensor.
- Channel D: 4-20 mA signal from a passive sensor

EM 235 Analog Combination 4 Inputs/1 Output
(6ES7 235-0KD22-0XA0)

Voltage
Unused
Current
PS PS L+ M
0-20mA
4-20mA
+ -
M
RA A+ A- RB B+ B- RC C+ C- RD D+ D-
250 Ohms (built-in)
M L+ ⏚
M0 V0 I0
Gain
Offset
Configuration
VLOAD
ILOAD
24 VDC Power

Figure A-14 Wiring Diagrams for Analog Expansion Modules

Analog in PLC SIEMENS S7-200:



Analog Input, 4 Inputs

A+
R
RA
C
Rloop
C
C
A-
R
A=1
B+
R
RB
C
C
Rloop
C
B-
R
A=2
C+
R
RC
C
C
Rloop
C
C-
R
A=3
D+
R
RD
C
C
Rloop
C
D-
R
A=4
Input filter
MUX 4 to 1
+
Instrumentation AMP
-
GAIN ADJUST

Analog in PLC SIEMENS S7-200:



Configuration for EM 235

Unipolar						Full-Scale Input
SW1	SW2	SW3	SW4	SW5	SW6	
ON	OFF	OFF	ON	OFF	ON	0 to 50 mV
OFF	ON	OFF	ON	OFF	ON	0 to 100 mV
ON	OFF	OFF	OFF	ON	ON	0 to 500 mV
OFF	ON	OFF	OFF	ON	ON	0 to 1 V
ON	OFF	OFF	OFF	OFF	ON	0 to 5 V
ON	OFF	OFF	OFF	OFF	ON	0 to 20 mA
OFF	ON	OFF	OFF	OFF	ON	0 to 10 V
Bipolar						**Full-Scale Input**
SW1	SW2	SW3	SW4	SW5	SW6	
ON	OFF	OFF	ON	OFF	OFF	±25 mV
OFF	ON	OFF	ON	OFF	OFF	±50 mV
OFF	OFF	ON	ON	OFF	OFF	±100 mV
ON	OFF	OFF	OFF	ON	OFF	±250 mV
OFF	ON	OFF	OFF	ON	OFF	±500 mV
OFF	OFF	ON	OFF	ON	OFF	±1 V
ON	OFF	OFF	OFF	OFF	OFF	±2.5 V
OFF	ON	OFF	OFF	OFF	OFF	±5 V
OFF	OFF	ON	OFF	OFF	OFF	±10 V

Analog output in PLC SIEMENS S7-200:



+24 Volt

R

100

Voltage-to-current converter

R

Iout
0..20 mA

+/- 2V

Vout
-10.. +10 Volts

R

1/4 R

Voltage output buffer

M

Analog in PLC SIEMENS S7-300 (internal):

Analog in PLC SIEMENS S7-300 (external):



(0) UR

1	
2	CPU 313C-2 DP
X2	DP
2.2	DI16/DO16
2.4	Count
3	
4	AI8x13Bit
5	AO2x12Bit
6	
7	
8	
9	
10	
11	

(0) UR

Module	O...	Fi...	M...
CPU 313C-2 DP	6ES7	V2.0	3
DP			
DI16/DO16			
Count			
AI8x13Bit	6ES7		
AO2x12Bit	6ES7		

Properties - AI8x13Bit - (R0/S4)

General | Addresses | Inputs

Measuring
Temperature unit: °C
Int Frequency: 50 Hz

Input	0	1	2	3
Measurement				
Measurement type:	E	E	E	E
Measuring range:	+/- 10 V	+/- 10 V	+/- 10 V	+/- 10 V

OK | Cancel | Help

Measuring range options:
+/- 50 mV
+/- 500 mV
+/- 1 V
+/- 5 V
+/- 10 V
1..5 V
0..10 V

Measurement type options:

	deactivated
E	voltage
I	Current
R	Resistance
RTD	Thermal resistor (lin.)

Analog in PLC SIEMENS S7-300 (external):



(0) UR

1	
2	CPU 313C-2 DP
X2	DP
2.2	DI16/DO16
2.4	Count
3	
4	AI8x13Bit
5	AO2x12Bit
6	
7	
8	
9	
10	
11	

Properties - AO2x12Bit - (R0/S5)

General | Addresses | Outputs

Enable

☑ Diagnostic Interrupt

	0	1
Diagnostics		
Group Diagnostics:	☑	☑
Output		
Type of Output:	E	E
Output Range:	+/- 10 V	+/- 10 V
Reaction to CPU-STOP:	OCV	OCV
Substitute Value:		

OCV	Outputs have no current or voltage
KLV	Keep last value
SV	Substitute a value

OK | Cancel | Help

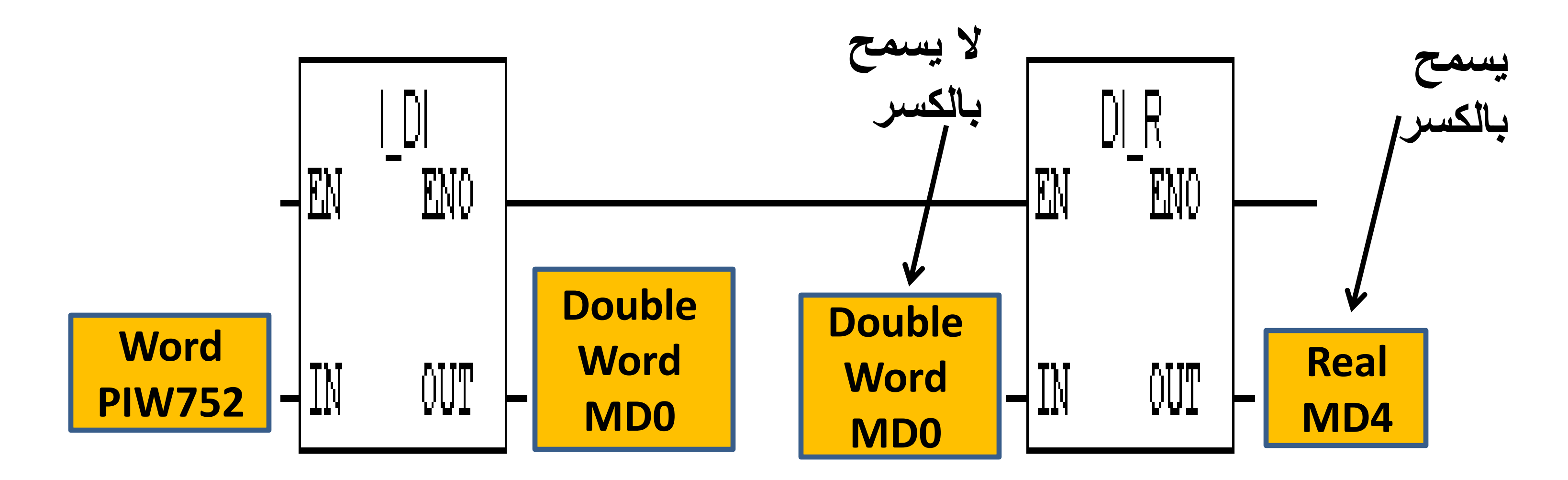
	deactivated
E	voltage
I	current

- 1..5 V
- 0..10 V
- +/- 10 V

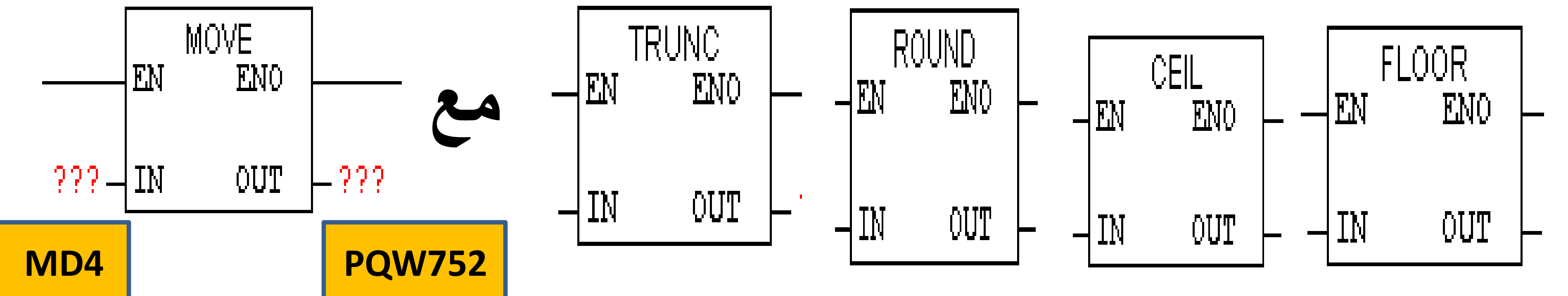
Analog I/P in PLC:



--لا بد من عمل التحويلة الأتية للحصول على نتائج دقيقة:



--وإذا أردت ربط الدخل بالخرج الأنالوج فعليك استخدام أى بلوك من الأتى:



Chocolate production project:



Cocoa
Water
Sugar
Milk
Butter

Q0.0
Q0.1
Q0.2
Q0.3
Q0.4

PIW752
PIW754
PIW756
PIW758
PIW760

Q0.5
Q0.6
Q0.7
Q1.0
Q1.1

Q1.2

PIW762

I0.3

Q1.4

Q1.3

Start
Stop

Cocoa
water
sugar
milk
butter
temperature

I0.4

Enter I0.2

Q1.5

Chocolate production project:



مطلوب تجميع مكونات الشيكولاتة من كاكاو وماء وسكر ولبن وزبدة عبر إدخال وزن كل كمية من الخارج بحد أقصي10كجم لكل مكون(شاشة/ برنامج PLC) وبعد التحقق من الأوزان يتم انزال الكاكاو والماء والسكرواللبن والزبدة وكل له حساس وزن ثم يتم إسقاط الأوزان المطلوبة إلي الخزان الكبير ثم يتم خلط المكونات عن طريق الخلاط لمدة 5 ثواني ثم يتم تسخين الخليط عند درجة الحرارة المطلوبة من الخارج ثم يتم انزال الخليط في الكرتونة إلي أن يفرغ الخزان (يوجد حساس مستوي سفلي).

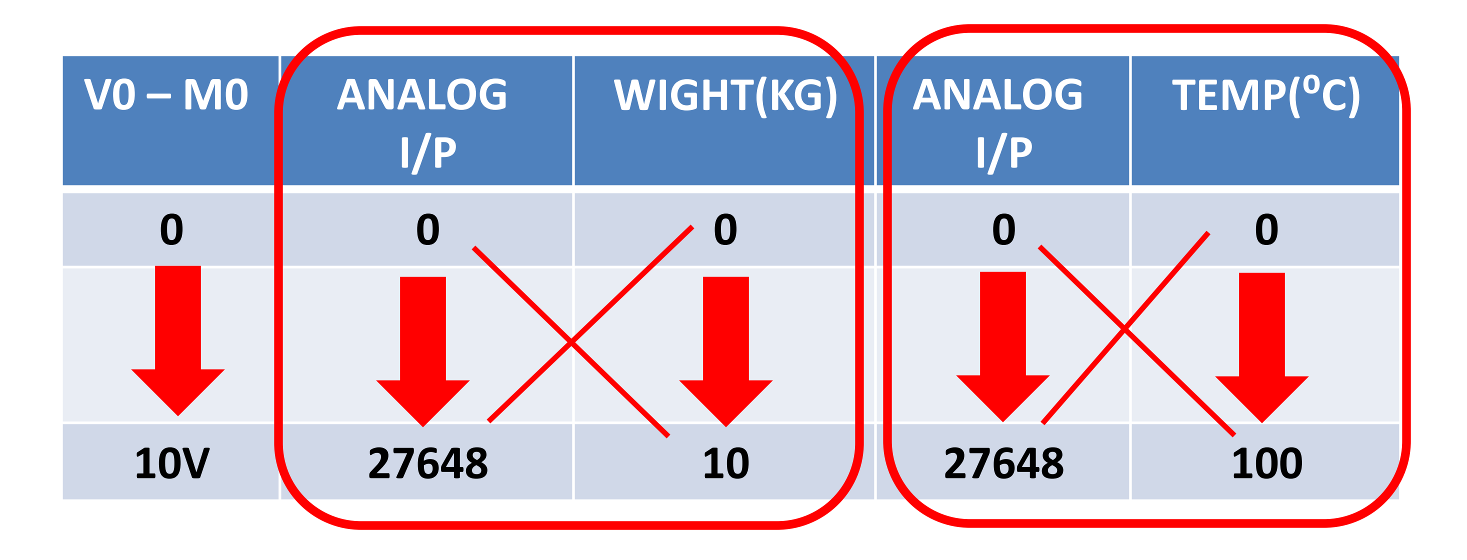
Chocolate production :



```
i0.0   --> on
i0.1   --> off
i0.2   --> enter/execute
i0.3   --> level sensor
i0.4   --> belt sensor
q0.0   --> cocoa
q0.1   --> water
q0.2   --> sugar
q0.3   --> milk
q0.4   --> butter
q0.5   --> cocoa2
q0.6   --> water2
q0.7   --> sugar2
q1.0   --> milk2
q1.1   --> butter2
q1.2   --> mixer
q1.3   --> heater
q1.4   --> drain
q1.5   --> belt
MD2    --> cocoa percent
MD6    --> water percent
MD10   --> sugar percent
MD14    --> milk percent
MD18   --> butter percent
MD22   --> temperature
PIW752  --> cocoa percent
PIW754  --> water percent
PIW756  --> sugar percent
PIW758  --> milk percent
PIW760  --> butter percent
PIW762 --> thermocouple
```

CHOCOLATE PRODUCTION:





V0 – M0	ANALOG I/P	WIGHT(KG)	ANALOG I/P	TEMP(^oC)
0	0	0	0	0
10V	27648	10	27648	100

WANTED WEIGHT VALUE = [WIGHT(KG)* 27648] / 10
= [WEIGHT(KG) * 2764.8]

WANTED TEMP VALUE = [TEMP(^oC)* 27648] / 100
= [TEMP(^oC) * 276.48]

Chocolate production :



Network 1 : Title:

I0.0 I0.1 M0.0
M0.0

Network 2 : Title:

MOVE EN ENO 2.764800e+003 IN OUT MD250
MOVE EN ENO 2.764800e+002 IN OUT MD230

Network 3 : Title:

CMP >R MD2 IN1 1.000000e+001 IN2
CMP >R MD6 IN1 1.000000e+001 IN2
CMP >R MD10 IN1 1.000000e+001 IN2
CMP >R MD14 IN1 1.000000e+001 IN2
CMP >R MD18 IN1 1.000000e+001 IN2
CMP >R MD22 IN1 1.000000e+002 IN2

M0.1 (R)

Chocolate production :



Network 4 : Title:

I0.2 —| |— M0.1 —(S)—

Network 5 : Title:

M0.1 —| |— M200.0 —(P)—

Block	IN1	IN2	OUT
MUL_R	MD2	MD250	MD26
MUL_R	MD6	MD250	MD30
MUL_R	MD10	MD250	MD34
MUL_R	MD14	MD250	MD38
MUL_R	MD18	MD250	MD42
MUL_R	MD22	MD230	MD46

Network 6 : Title:

I_DI: IN PIW752, OUT MD50 — DI_R: IN MD50, OUT MD74

Network 7 : Title:

I_DI: IN PIW754, OUT MD54 — DI_R: IN MD54, OUT MD78

Network 8 : Title:

I_DI: IN PIW756, OUT MD58 — DI_R: IN MD58, OUT MD82

Network 9 : Title:

I_DI: IN PIW758, OUT MD62 — DI_R: IN MD62, OUT MD86

Network 10 : Title:

I_DI: IN PIW760, OUT MD66 — DI_R: IN MD66, OUT MD90

Network 11 : Title:

I_DI: IN PIW762, OUT MD70 — DI_R: IN MD70, OUT MD94

Chocolate production :



Network 12 : Title:

M0.0
M0.1
M0.2
CMP <R
Q0.0
MD74 IN1
MD26 IN2
CMP <R
Q0.1
MD78 IN1
MD30 IN2
CMP <R
Q0.2
MD82 IN1
MD34 IN2
CMP <R
Q0.3
MD86 IN1
MD38 IN2
CMP <R
Q0.4
MD90 IN1
MD42 IN2

Network 13 : Title:

CMP <R
M200.1
(N)
M0.2
(S)
MD74 IN1
MD26 IN2
CMP <R
MD78 IN1
MD30 IN2
CMP <R
MD82 IN1
MD34 IN2
CMP <R
MD86 IN1
MD38 IN2
CMP <R
MD90 IN1
MD42 IN2

Chocolate production :



Network 14 : Title:

M0.0 M0.1 M0.2

CMP >R — Q0.5
MD74 — IN1
0.000000e+000 — IN2

CMP >R — Q0.6
MD78 — IN1
0.000000e+000 — IN2

CMP >R — Q0.7
MD82 — IN1
0.000000e+000 — IN2

CMP >R — Q1.0
MD86 — IN1
0.000000e+000 — IN2

CMP >R — Q1.1
MD90 — IN1
0.000000e+000 — IN2

Network 15 : Title:

CMP >R
MD74 — IN1
0.000000e+000 — IN2

M200.2 (N) M0.3 (S)

CMP >R
MD78 — IN1
0.000000e+000 — IN2

CMP >R
MD82 — IN1
0.000000e+000 — IN2

CMP >R
MD86 — IN1
0.000000e+000 — IN2

CMP >R
MD90 — IN1
0.000000e+000 — IN2

Chocolate production :



Network 16 : Title:

```
      A     M      0.0
      A     M      0.1
      A     M      0.3
      =     L     20.0
      A     L     20.0
      AN    M      0.6
      =     Q      1.2
      A     Q      1.2
      =     L     20.1
      BLD   103
      A     M    255.0
      =     L     20.2
      BLD   103
      A     L     20.0
      JNB   _00d
      CALL  "TONR"                    FC80            -- Timer On Delay - Retentive
       TMR_EN :=L20.1
       RESET  :=L20.2
       PV     :=MD210
       DELTA_T:=#OB1_PREV_CYCLE       #OB1_PREV_CYCLE  -- Cycle time of previous OB1 scan (milliseconds)
       Q      :=M0.6
       ET     :=MD205
_00d: NOP   0
```

Network 17 : Title:

MOVE: EN, ENO; 10000 — IN, OUT — MD210

Network 18 : Title:

M0.0, M0.1, M0.6, CMP <R (MD94 — IN1, MD46 — IN2), M0.4 (/), Q1.3 ( )

Network 19 : Title:

M0.0, M0.1, CMP >=R (MD94 — IN1, MD46 — IN2), I0.3, I0.4, Q1.4 ( ); M0.4 (S); M0.4

Network 20 : Title:

I0.3, M255.1 (N), M255.0 ( ); M0.1 (R); M0.2 (R); M0.3 (R); M0.4 (R)

Network 21 : Title:

M0.0, I0.4 (/), M0.5, Q1.5 ( )

Network 22 : Title:

I0.3, M255.2 (N), I0.4, M0.5 ( ); M0.5

AC DRIVE:

Main Usages:

-- Source of 3-phase lines.

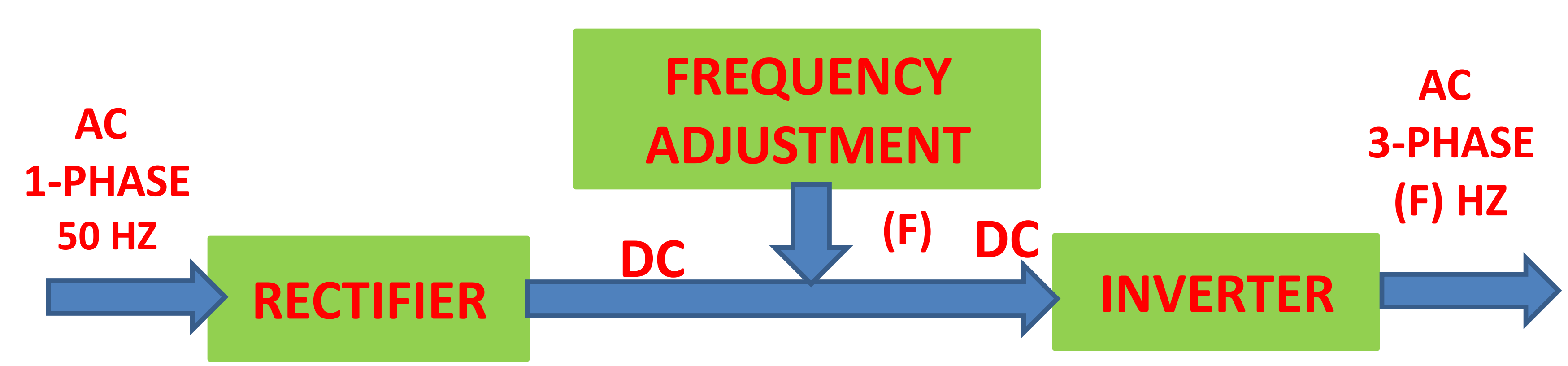
-- start/stop for motor (keypad/terminals).

-- control speed of 3-phase motor.

-- reverse motion of 3-phase motor.

-- DC braking for 3-phase motor.





AC DRIVE KEYPAD:



FUNCTION إظهار البيانات

REVERSEعكس حركة

INCREASE زيادة

DECREASE نقصان

START تشغيل

STOP إيقاف

PARAMETERS
البارمترات

JOG تشغيل لحظى

AC DRIVE MICROMASTER 420 TERMINALS:



TERMINAL	FUNCTION
1	+10 V
2	0 V
3	ANALOG INPUT (+)
4	ANALOG INPUT (-)
5	DIGITAL INPUT 1 (Activated at +24V)
6	DIGITAL INPUT 2 (Activated at +24V)
7	DIGITAL INPUT 3 (Activated at +24V)
8	+24 V
9	0 V
10	OUTPUT RELAY CONTACT
11	
12	ANALOG OUTPUT (0-20 mA)
13	
14	} For advanced communications
15	



AC DRIVE MICROMASTER 420 TERMINALS:



3.3 Block diagram

PE
1/3 AC 200 - 240 V
3 AC 380 - 480 V
SI
PE
L/L1, N/L2
or
L/L1, N/L2, L3
or
L1, L2, L3
+10 V
0 V
≥ 4.7 kΩ
ADC+
ADC-
A/D
BOP link
RS232
150.00
BOP/AOP
External 24 V
DIN1
DIN2
DIN3
24 V
PNP
or
NPN
Output +24 V
max. 100 mA
(isolated)
Output 0 V
max. 100 mA
(isolated)
CPU
DC+
DC−
DC-link connection
30 V DC / 5 A (resistive)
250 V AC / 2 A (inductive)
Relay
RL1-B
RL1-C
0 - 20 mA
max. 500 Ω
DAC+
DAC-
D/A
3 ~
P+
N-
RS485
COM link
CB
Option
automatic
Not used
60 Hz
50 Hz
DIP switch
PE
U,V,W
M
The analog input circuit can be alternatively configured to provide an additional digital input (DIN4):
DIN4
24 V

Fig. 3-11 MICROMASTER 420 – block diagram

AC DRIVE MICROMASTER 420 PARAMETERS:



PARAMETER	VALUE	FUNCTION
P0003	1	Most frequently used parameters
	2	Parameters + Drive I/O functions
P0010	1	Quick commissioning
P0100	0	European system.
P0304	Motor plate	Rated motor voltage (volt)
P0305	Motor plate	Rated motor current (Ampere)
P0307	Motor plate	Rated motor power (KW)
P0310	Motor plate	Rated motor frequency (HZ)
P0311	Motor plate	Rated motor speed (R.P.M)
P0700	1	Inputs from keypad
	2	Inputs from terminal (P0003=2)
p1000	1	Frequency from keypad
	2	Frequency from terminals (analog input)
p1080	0	Minimum frequency (HZ)
p1082	50	Maximum frequency (HZ)
p3900	1	Start quick commissioning

P0701	1 (on/off)
P0702	25 (Brake)
P0703	10 (Jog)

AC DRIVE YASKAWA V1000 SIMULATION:



V1000 Programming Simulator

File Help

ESC Λ LO RE
RESET V ENTER
RUN STOP

ALM REV DRV FOUT

Operator Information:

Status: Drive is currently turned Off, to turn the drive On click on the Main Power

User Terminals | Fault and Alarms | Help

Move mouse over terminals for additional information or click to program.

Submit Comments, Suggestions or Bugs

Alternate Terminal Board

R+ R- S+ S- IG

P1 P2 PC A1 A2 +V AC AM AC MP

P1-PC P2-PC Photocoupler Output

Analog Output (V)

Pulse Output (Hz)

S1 S2 S3 S4 S5 S6 S7 HC SC H1 RP

MA MB MC

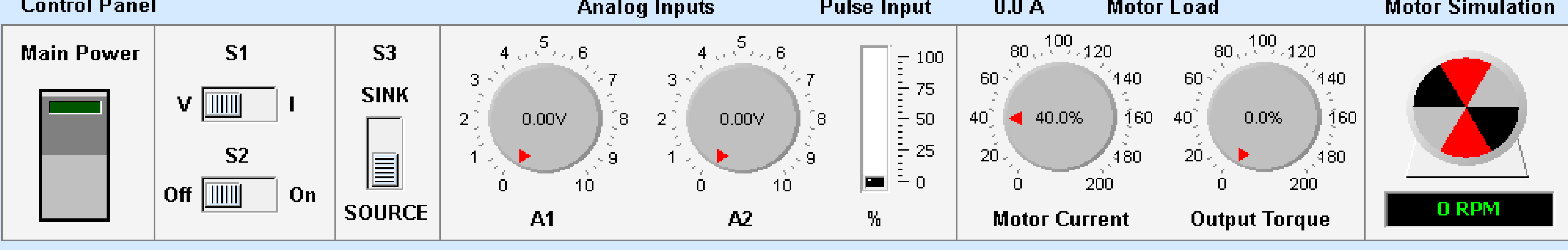
MA-MC MB-MC

Multi-function Digital Inputs

Hardwire Baseblock

Multi-function Relay Output

www.yaskawa.com

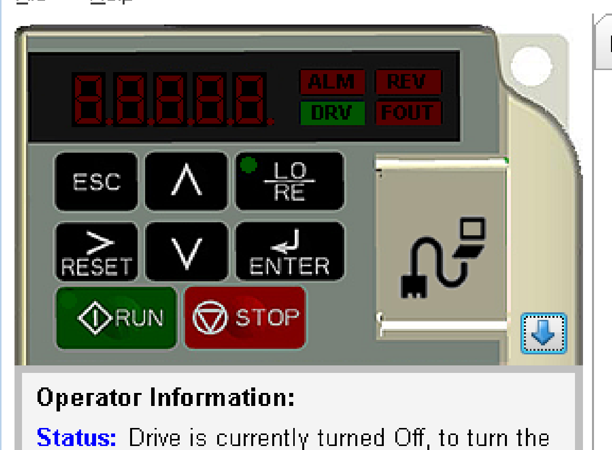


AC DRIVE YASKAWA V1000 SIMULATION:



V1000 Programming Simulator



Operator Information:

Status: Drive is currently turned Off, to turn the drive On click on the Main Power





V1000 Flyer

Flyer V1000 Current Vector Drive 1/8 to 25 HP

V1000 Flyer (NEMA 4X)

Flyer V1000-4X Current MicroDrive, 1/8 to 25 HP



V1000 Quick Start Guide

V1000 Quick Start Guide shows mechanical installation, parameters and basic programming.



V1000 Quick Start Procedure

V1000 Quick Start Procedure shows a step by step basic setup of the V1000.

V1000 Technical Manual

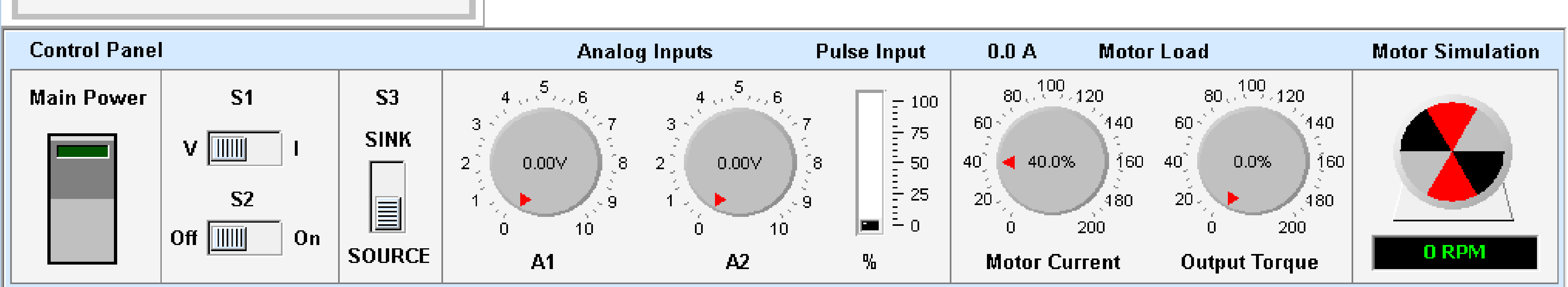
V1000 Technical Manual shows detailed parameter descriptions, keypad operations, wiring diagrams and more.

Program Help

Detailed document explaining on how to use this program.

Check for Updates

Check if an update of this software is available. (Requires internet connection).



AC DRIVE YASKAWA V1000 SIMULATION:



TOEPC710606.pdf - Adobe Reader

File Edit View Document Tools Window Help

1 / 242 114% Find

Bookmarks

YASKAWA

YASKAWA AC Drive-V1000

Compact Vector Control Drive

Quick Start Guide

Type: CIMR-VU ☐

Models: 200 V Class, Three-Phase Input: 0.1 to 18.5 kW
200 V Class, Single-Phase Input: 0.1 to 3.7 kW
400 V Class, Three-Phase Input: 0.2 to 18.5 kW

To properly use the product, read this manual thoroughly and retain for easy reference, inspection, and maintenance. Ensure the end user receives this manual.

Contém manual suplementar em Português.

MANUAL NO. TOEP C710606 47B

AC DRIVE YASKAWA V1000 SIMULATION:



3.1 Standard Connection Diagram

Terminals +1, +2, –, B1, and B2 are for connecting options. Never connect power supply lines to these terminals.

DC link choke (option) <1>

Jumper

<2>

Thermal relay (option)

Braking resistor (option)

Motor

Cooling fan

For single-phase 200 V power supply use R/L1 and S/L2.

<3>

2 MCCB

r1
s1
t1

+2 +1 – B1 B2

r1 FU
s1 FV
t1 FW

M

Wiring sequence should shut off power to the drive when a fault output is triggered. <8>

1 MCCB

MC

V1000

R/L1
S/L2
T/L3

Three phase power supply for 200 V / 400 V

R/L1
S/L2
T/L3

Main circuit

U/T1
V/T2
W/T3

U
V
W

M

Control circuit

<4>

TRX THRX OFF ON MC

SA

Braking resistor unit Thermal relay trip contact

THRX

SA

MC

TRX

SA

MC MB

TRX

Fault relay contact

Forward run/stop S1

Reverse run/stop S2

External fault S3

Fault reset S4

Multi-step speed 1 main/aux switch S5

Multi-step speed 2 S6

Jog reference S7

Digital inputs (default setting)

Ground
10 Ω or less (400 V class)
100 Ω or less (200 V class)

Option card connector

DIP switch S1

V I

Digital output
250 Vac, 10 mA to 1 A
30 Vdc, 10 mA to 1 A
(default setting)

Fault

MA
MB
MC

+24 V 8 mA

24 V

<5>

DIP switch S3

Sink

Source

SC

0 V

Shield ground terminal

Digital output
5 to 48 Vdc
2 to 50 mA
(default setting)

P1 During Run (photocoupler 1)

P2 Frequency agree (photocoupler 2)

PC Photocoupler output common

RP Pulse train input (max. 32 kHz)

+V Setting power supply +10.5 max. 20 mA

2 kΩ

A1 0 to +10 V (20 kΩ)

A2 0 to +10 V (20 kΩ) (0)4 to 20 mA (250 Ω)

AC

Main speed frequency reference. Multi-function programmable

MP Pulse train output 0 to 32 kHz

<6>

AM Analog monitor output

AM

0 to +10 Vdc (2 mA)

AC

Monitor output

Safety switch

Safe Disable Input

Jumper

HC

<7>

H1

DIP switch S2

Termination resistor 120 Ω, 1/2 W

Comm. connector

R+
R-
S+
S-
IG

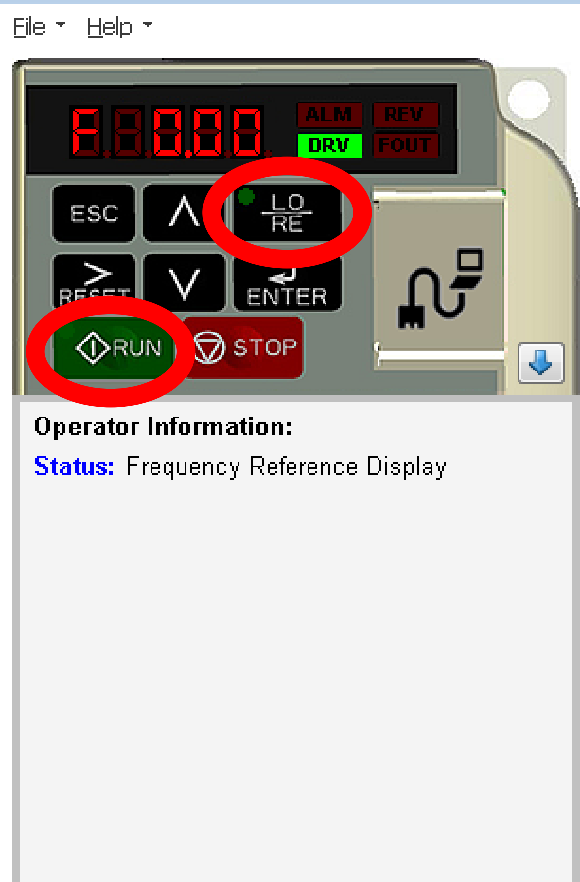
MEMOBUS/ Modbus comm. RS-485/422

Cable shield ground

V1000 SIMULATION(Run from keypad):







User Terminals | Fault and Alarms | Help

Move mouse over terminals for additional information or click to program.

Submit Comments, Suggestions or Bugs

Alternate Terminal Board

R+ R- S+ S- IG

P1 P2 PC A1 A2 +V AC AM AC MP

P1-PC P2-PC Photocoupler Output

Analog Output (V)

Pulse Output (Hz)

S1 S2 S3 S4 S5 S6 S7 HC SC H1 RP

MA MB MC

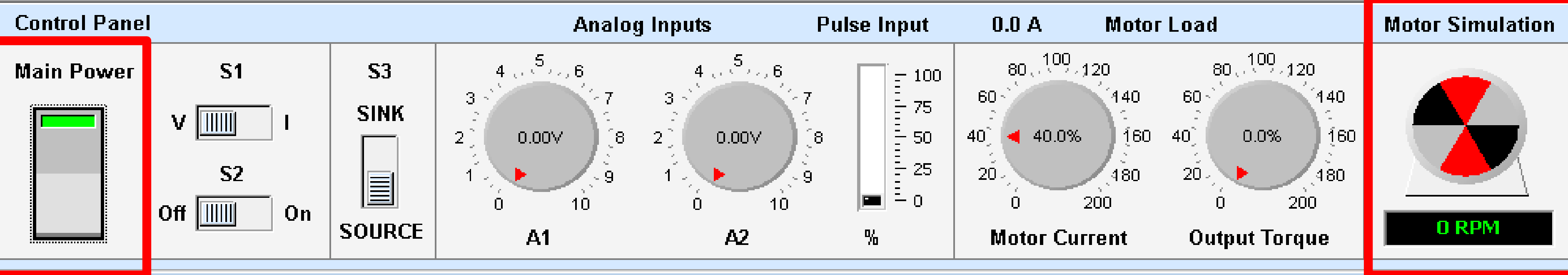
MA-MC MB-MC

Multi-function Digital Inputs

Hardwire Baseblock

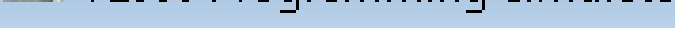
Multi-function Relay Output

www.yaskawa.com



V1000 SIMULATION(Run from keypad):





File Help

ESC
LO RE
RESET
ENTER
RUN
STOP
ALM REV DRV FOUT

Operator Information:

Status: Frequency Reference Display

User Terminals | Fault and Alarms | Help

Move mouse over terminals for additional information or click to program.

Submit Comments, Suggestions or Bugs

Alternate Terminal Board

R+ R- S+ S- IG

P1 P2 PC A1 A2 +V AC AM AC MP

P1-PC P2-PC
Photocoupler Output

Analog Output (V)

Pulse Output (Hz)

S1 S2 S3 S4 S5 S6 S7 HC SC H1 RP

MA MB MC

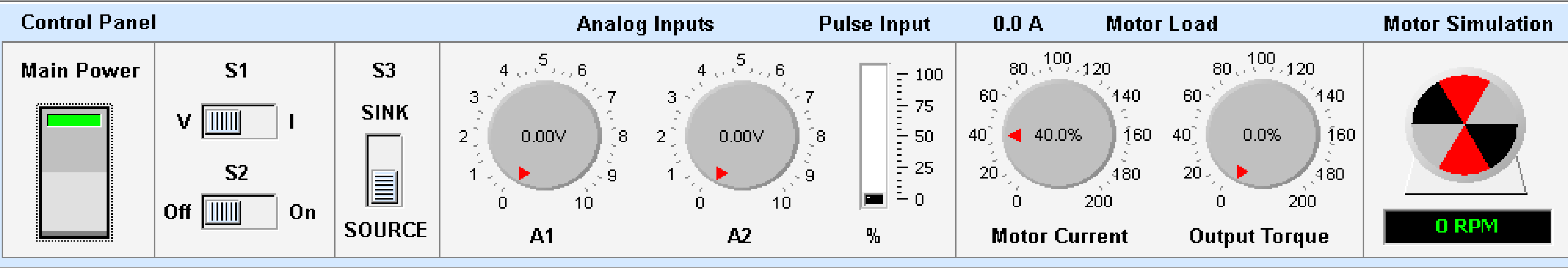
MA-MC MB-MC

Multi-function Digital Inputs

Hardwire Baseblock

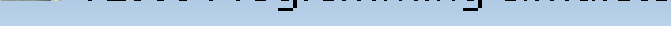
Multi-function Relay Output

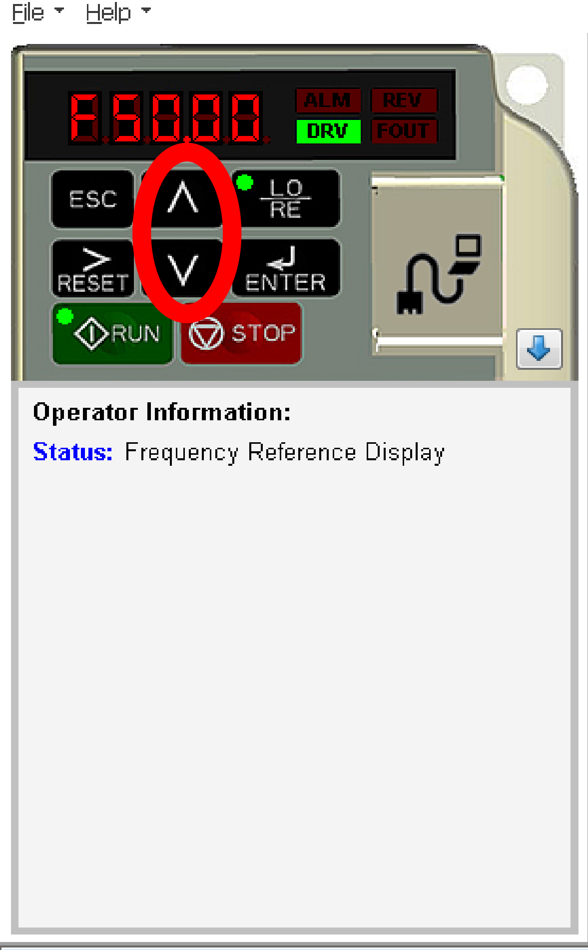
www.yaskawa.com



V1000 SIMULATION(frequency from keypad):







User Terminals | Fault and Alarms | Help

Move mouse over terminals for additional information or click to program.

Submit Comments, Suggestions or Bugs

Alternate Terminal Board

R+ R- S+ S- IG

P1 P2 PC A1 A2 +V AC AM AC MP

P1-PC P2-PC Photocoupler Output

Analog Output (V)

Pulse Output (Hz)

S1 S2 S3 S4 S5 S6 S7 HC SC H1 RP

MA MB MC

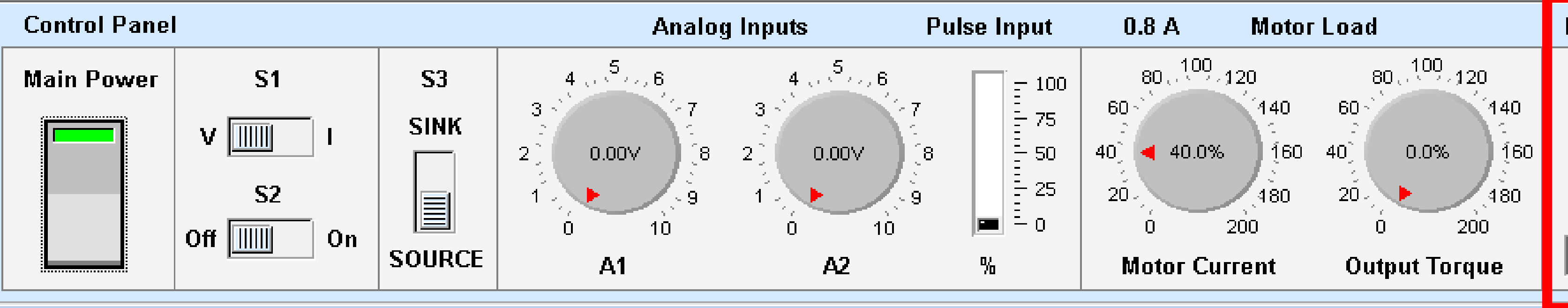
MA-MC MB-MC

Multi-function Digital Inputs

Hardwire Baseblock

Multi-function Relay Output

www.yaskawa.com



Motor Simulation

1500 RPM

V1000 SIMULATION(from keypad/reverse):



V1000 Programming Simulator

File Help

ALM REV DRV FOUT
ESC LO RE RESET ENTER RUN STOP

Operator Information:

Status: Forward/Reverse

V1000 Programming Simulator

File Help

ALM REV DRV FOUT
ESC LO RE RESET ENTER RUN STOP

Operator Information:

Status: Forward/Reverse

V1000 Programming Simulator

File Help

ALM REV DRV FOUT
ESC LO RE RESET ENTER RUN STOP

Operator Information:

Status: Forward/Reverse

User Terminals | Fault and Alarms | Help

Move mouse over terminals for additional information or click to program.

Submit Comments, Suggestions or Bugs

Alternate Terminal Board

R+ R- S+ S- IG

P1 P2 PC A1 A2 +V AC AM AC MP

P1-PC P2-PC Photocoupler Output

Analog Output (V)

Pulse Output (Hz)

S1 S2 S3 S4 S5 S6 S7 HC SC H1 RP

MA MB MC

Multi-function Digital Inputs

Hardwire Baseblock

MA-MC MB-MC Multi-function Relay Output

www.yaskawa.com

Control Panel | Analog Inputs | Pulse Input | 0.8 A | Motor Load | Motor Simulation

Main Power

S1 V I

S2 Off On

S3 SINK SOURCE

A1 0.00V

A2 0.00V

%

Motor Current 40.0%

Output Torque 0.0%

-1500 RPM

V1000 SIMULATION(run from terminal):





V1000(reverse/frequency from terminal):





AC DRIVE V1000 SIMULATION DISPLAY:



V1000 Programming Simulator

File Help

ALM REV DRV FOUT

ESC LO RE RESET ENTER RUN STOP

User Terminals | Fault and Alarms | Help

Move mouse over terminals for additional information or click to program.

Submit Comments, Suggestions or Bugs

Alternate Terminal Board

R+ R- S+ S- IG

P1 P2 PC A1 A2 +V AC AM AC MP

P1-PC P2-PC Photocoupler Output

Analog Output (V)

Pulse Output (Hz)

S1 S2 S3 S4 S5 S6 S7 HC SC H1 RP

MA MB MC

MA-MC MB-MC

Multi-function Digital Inputs

Hardwire Baseblock

Multi-function Relay Output

www.yaskawa.com

Operator Information:

Status: Output Current Display

Control Panel | Analog Inputs | Pulse Input | 0.8 A | Motor Load | Motor Simulation

Main Power

S1 V I

S2 Off On

S3 SINK SOURCE

4.97V A1

0.00V A2

%

40.0% Motor Current

0.0% Output Torque

894 RPM

AC DRIVE – TD200 SCREEN – PLC SIEMENS S7-200 CONNECTIONS:



L
N
L
N
U
V
W

AC DRIVE
MICROMASTER
420

3
4
5
6
8

5
R1
9

TD 200 Version 3

F1 F2 F3 F4

3
4

I 0 | V 0 | M 0 | L+ | M

ANALOG EXPANSION
EM235

L+ | M

PLC SIEMENS S7-200

L | N | Q0.0 | 1L

13
R1
14

L
N
L

ANALOG EM235:



V0 – M0	AQW0	SPEED(r. p. m)
0	0	0
↓	↓	↓
10V	32000	1360

MIN. SPEED

MAX. SPEED

AQW0 = [SPEED (R.P.M)* 32000] / 1360

= [SPEED (R.P.M) * 3200] / 136

= [VW400 * 3200] / 136

TD-200 CONFIGURATION:

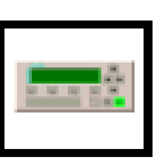


Text Display Wizard



Select TD Model and Version

Use this page to select the model and version of your TD device.



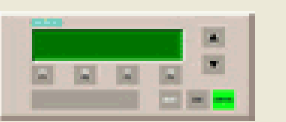


To view the specific features supported by your TD, please select the model and version of TD you have. To determine the model and version of your TD, you may power-up the unit. The initial screen will display the model and version. The model and version may also be listed on the back of your TD. If there is no version listed on the back of the unit, then select 'Version 2.1 and earlier', below.

Select TD Model and Version

- ( ) TD 200 Version 2.1 and earlier
- (•) TD 200 Version 3.0
- ( ) TD 200C Version 1.0
- ( ) TD 100C Version 1.0
- ( ) TD400C Version 1.0
- ( ) TD400C Version 2.0

TD 200 Version 3



Click for Help and Support

<Prev | Next> | Cancel

TD-200 CONFIGURATION:

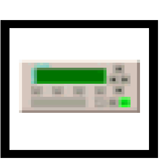


Text Display Wizard



Configure Keypad Buttons

Use this page to configure the Set Bit buttons defined for the TD keypad.





Configure

The keypad defines buttons for controlling 8 V-Memory bits. Using the SHIFT button, each Set Bit button may control two PLC bits.

Suggested symbolic names for the V-Memory bits controlled by each button are listed below. You may configure each button to either set the bit or act as a momentary contact.

	Button Name	Button Symbol	Button Action
1	F1	F1	Momentary contact
2	SHIFT+F1	S_F1	Set bit
3	F2	F2	Momentary contact
4	SHIFT+F2	S_F2	Set bit
5	F3	F3	Momentary contact
6	SHIFT+F3	S_F3	Set bit
7	F4	F4	Momentary contact
8	SHIFT+F4	S_F4	Set bit

start

stop

Increase speed

Decrease speed

☑ Display feedback on the TD 200 display when a Set Bit button is pressed.

Click for Help and Support

<Prev | Next> | Cancel

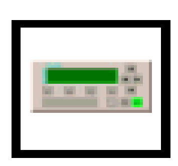
TD-200 CONFIGURATION:

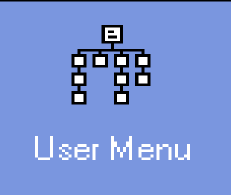


Text Display Wizard



Menu Introduction





Define a User Menu

The TD 200 supports a user-defined menu with multiple screens that can be used to display operator instructions. This menu is accessed by a keypress on the TD 200 and is not under program control. Each menu choice may have multiple screens that may include PLC data references and graphical icons.

Click for Help and Support

<Prev | Next> | Cancel

TD-200 CONFIGURATION:

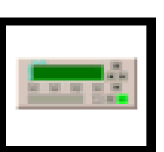


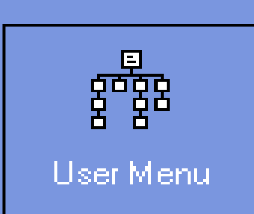
Text Display Wizard



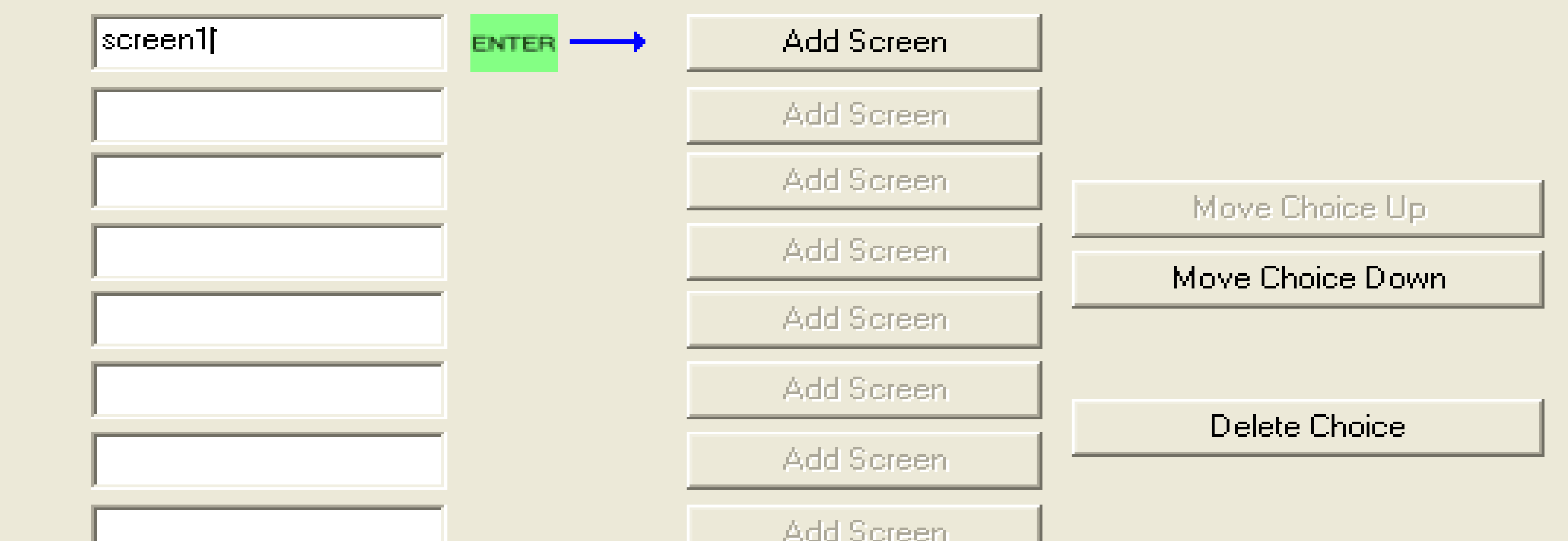
Define a User Menu

Use this page to to define the choices and screens for your user menu.





The TD 200 supports a user menu with 8 choices. Each of these choices may lead to 8 screens. Enter your menu choices in the spaces below. Click the buttons to the right to define screens that will be displayed for each menu choice.



Click for Help and Support

<Prev Next> Cancel

TD-200 CONFIGURATION:

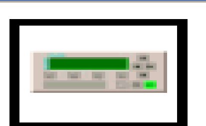




Text Display Wizard

Screen for Menu Choice 'screen1'

Use this page to define the screen. A screen may include PLC data references and graphical icons.



Screen 0 (1 defined for this choice)

Edit Data (VW400)...

SIEMENS

speed: r.p.m

F5 F1

F6 F2

F7 F3

F8 F4

SHIFT

ESC

ENTER

INS

This screen should be the default display when there has been no operator interaction.

Click for Help and Support

OK

Cancel

S7-200 program:



PROGRAM COMMENTS

Network 1 Network Title

Network Comment

F1:V57.0

F2:V57.1 /

start_stop:Q0.0 ( )

start_stop:Q0.0

Symbol	Address	Comment
F1	V57.0	Symbol for keypad button 'F1' pressed (Momentary Contact)
F2	V57.1	Symbol for keypad button 'F2' pressed (Momentary Contact)
start_stop	Q0.0	

Network 2

reset speed

SM0.1

MOV_W

EN ENO

0 IN OUT VW400

Network 3

increase speed

F3:V57.2

P

VW400 <I 1300

ADD_I

EN ENO

100 IN1 OUT VW400

VW400 IN2

S7-200 program:



Network 4

decrease speed

F4:V57.3 — P — VW400 >I 0 — SUB_I (EN, ENO; IN1: VW400, IN2: 100, OUT: VW400)

Symbol	Address	Comment
F4	V57.3	Symbol for keypad button 'F4' pressed (Momentary Contact)

Network 5

SM0.0 — MUL (EN, ENO; IN1: VW400, IN2: 3200, OUT: MD0) — DIV_DI (EN, ENO; IN1: MD0, IN2: +136, OUT:) 5.A

5.A — MD4 — MOV_W (EN, ENO; IN: MW6, OUT: AQW0)

AC DRIVE – PLC SIEMENS S7-300 CPU313C CONNECTIONS:



AC DRIVE – PLC SIEMENS S7-300 CPU313C CONNECTIONS:



HW Config - [SIMATIC 300(1) (Configuration) -- ali]

Station Edit Insert PLC View Options Window Help

(0) UR

1	
2	**CPU 313C**
2.2	*DI24/DO16*
2.3	*AI5/AO2*
2.4	*Count*
3	
4	
5	

Properties - AI5/AO2 - (R0/S2.3)

General | Addresses | Inputs | Outputs

Output	0	1
Output:		
Output type:	V	V
Output range:	0..10 V	+/- 10 V

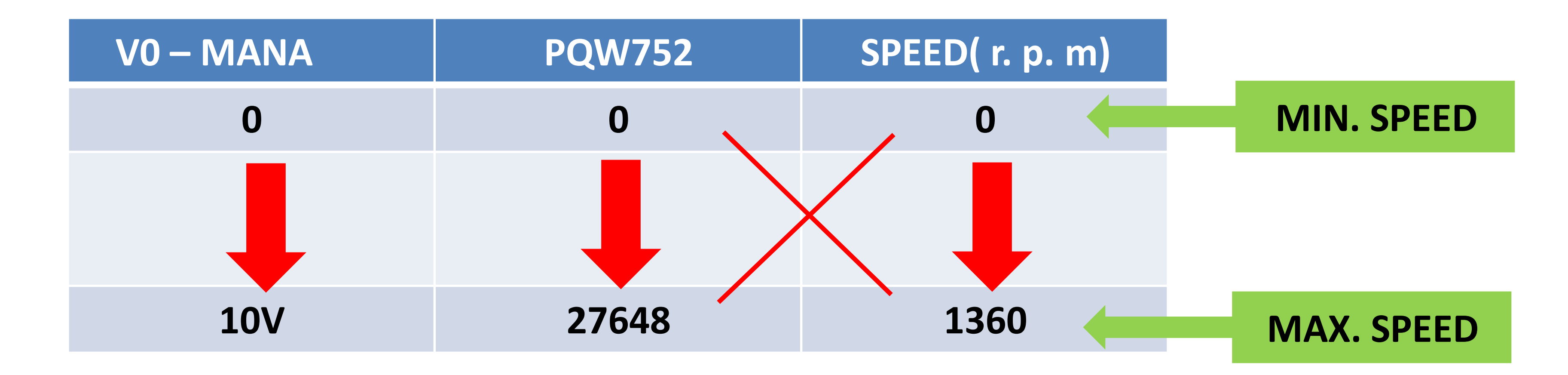
OK Cancel Help

(0) UR

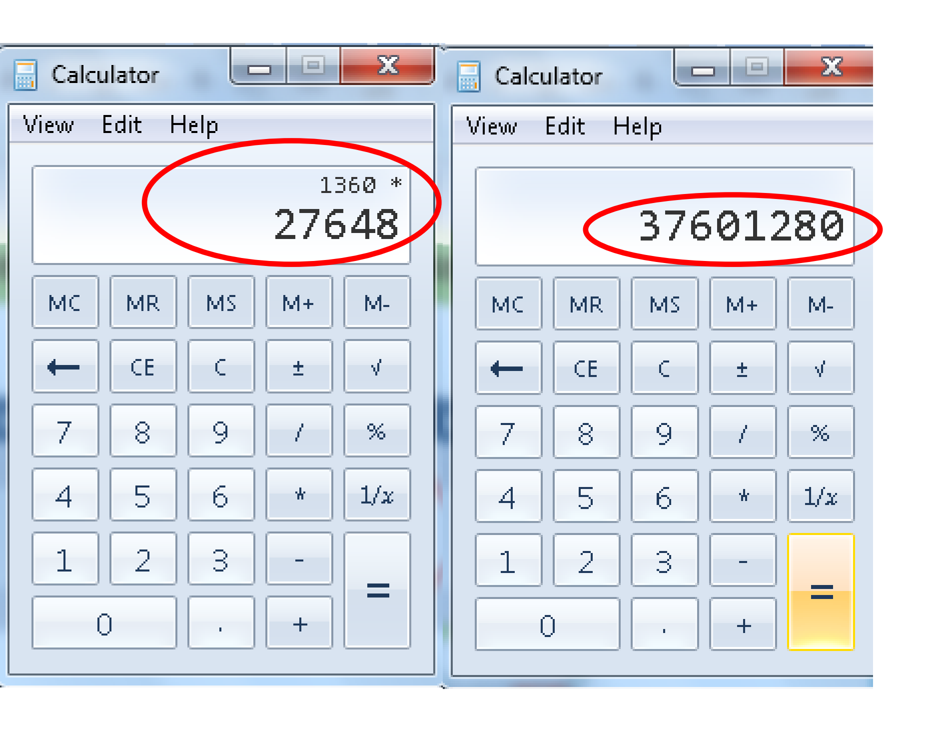
Slot	Module ...	O...	Fi...	M...	I ...	Q...
1						
2	**CPU 313C**	**6ES7**	**V2.6**	**2**		
2.2	*DI24/DO16*				*124...*	*124...*
2.3	*AI5/AO2*				*752...*	*752...*
2.4	*Count*				*768...*	*768...*
3						
4						
5						
6						
7						
8						
9						
10						
11						

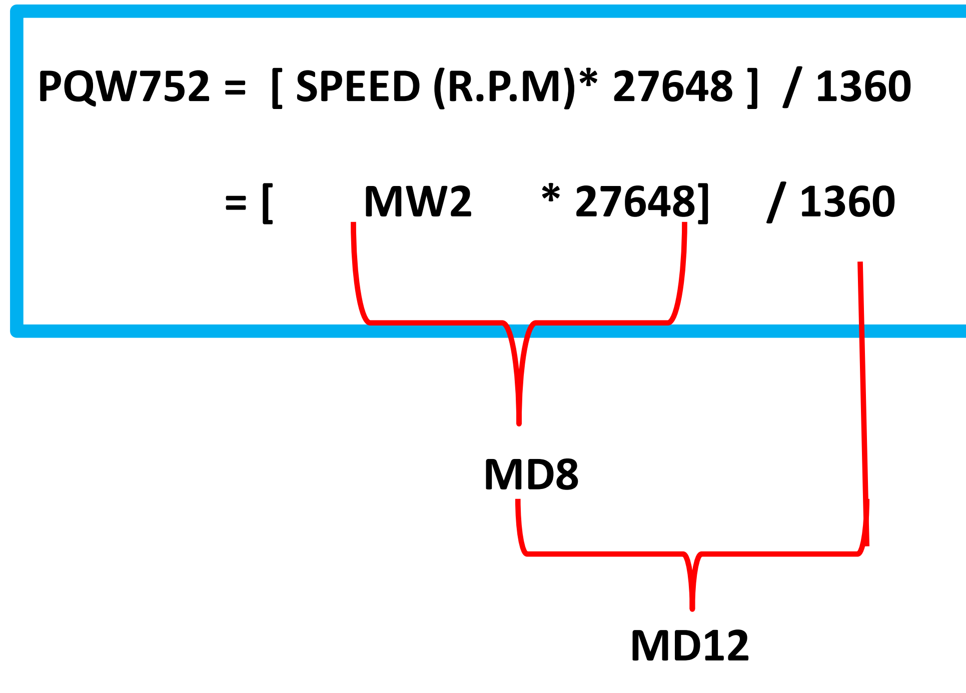
AC DRIVE – PLC SIEMENS S7-300 CPU313C CONNECTIONS:





V0 – MANA	PQW752	SPEED(r. p. m)
0	0	0
10V	27648	1360



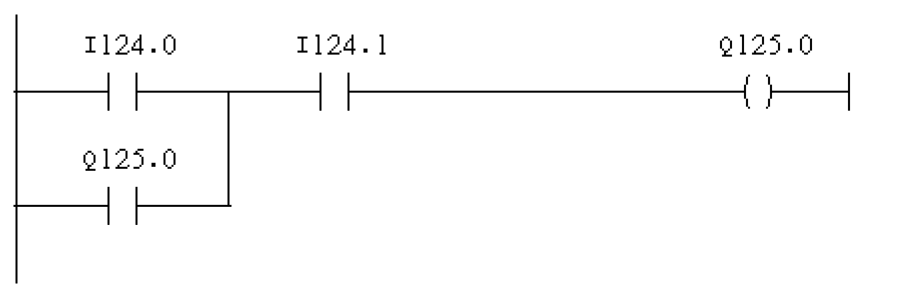


AC DRIVE – PLC SIEMENS S7-300 CPU313C CONNECTIONS:

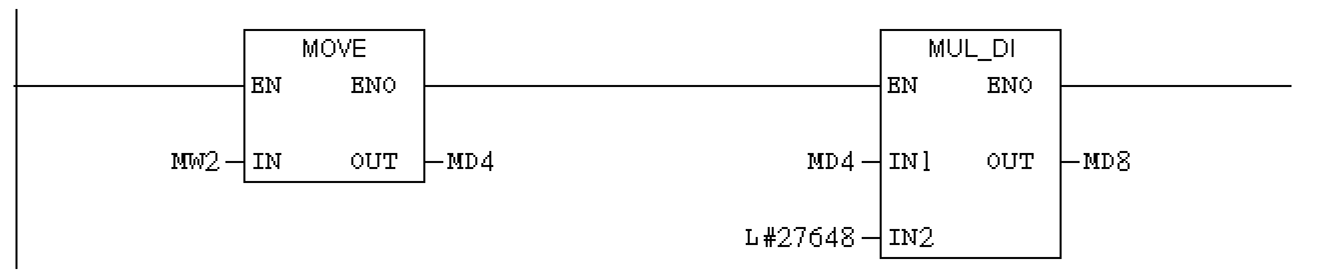


OB1 : "Main Program Sweep (Cycle)"

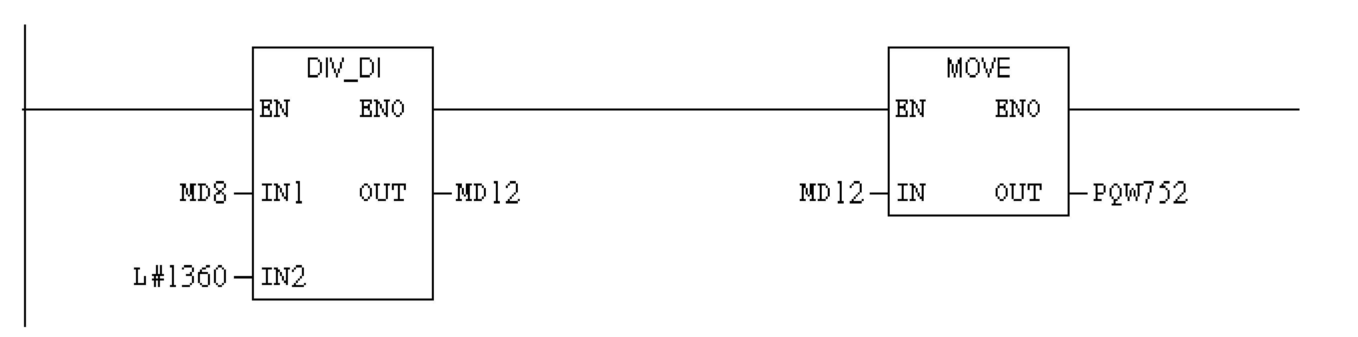
Network 1: Title:



Network 2: Title:



Network 3: Title:



AC DRIVE – PLC SIEMENS S7-300 CPU313C CONNECTIONS:



rogram Files\Siemens\Step7\ali\s7proj\ali]

w Options Window Help

< No Filter >

System data OB1

- Cut Ctrl+X
- Copy Ctrl+C
- Paste Ctrl+V
- Delete Del
- Insert New Object
  - Organization Block
  - Function Block
  - Function
  - Data Block
  - Data Type
  - Variable Table
- PLC
- Rewire...
- Compare Blocks...
- Reference Data
- Check Block Consistency...
- Print
- Object Properties... Alt+Return
- Special Object Properties

اضغط هنا فيمكنك مراقبة القيم التى تتغير

Var - [VAT_1 -- @ali\SIMATIC 300(1)\CPU 313C\S7 Program(1) ONLINE]

Table Edit Insert PLC Variable View Options Window Help

	Address	Symbol	Display format	Status value	Modify value
1	I 124.0		BOOL	false	
2	I 124.1		BOOL	false	
3	MW 2		DEC	0	
4	Q 125.0		BOOL	false	false
5	PQW 752		HEX		

AC DRIVE – PLC SIEMENS S7-300 CPU313C CONNECTIONS:

Jelecom Training For Excellence

Var - [VAT_1 -- @ali\SIMATIC 300(1)\CPU 313C\S7 Program(1) ONLINE]

Table Edit Insert PLC Variable View Options Window Help

	Address	Symbol	Display format	Status value	Modify value
1	I 124.0		BOOL	true	
2	I 124.1		BOOL	true	
3	MW 2		DEC	0	1360
4	Q 125.0		BOOL	true	false
5	PQW 752		HEX		
6					

ENGINE START

اضغط علي

أدخل السرعة 1360

RIGHT CLICK

0 RPM

Command	Shortcut
Monitor	Ctrl+F7
Modify	Ctrl+F9
Update Monitor Values	F7
Activate Modify Value	F9
Modify Address to 1	Ctrl+1
Modify Address to 0	Ctrl+0
Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Delete	Del
Insert Range of Variables...	Ctrl+K
Modify/Force Value As Comment	F3
Row Not Effective	Ctrl+B

1360 RPM

	Address	Symbol	Display format	Status value	Modify value
1	I 124.0		BOOL	true	
2	I 124.1		BOOL	true	
3	MW 2		DEC	1360	1360
4	Q 125.0		BOOL	true	false



ADDITIONAL CIRCUITS
دوائر إضافية

Chocolate production project:



Cocoa
Water
Sugar
Milk
Butter
Q0.0
Q0.1
Q0.2
Q0.3
Q0.4
Q0.5
PIW754
Q0.6
Q0.7
حساس وزن
PIW752
I0.3
Start
Stop
Cocoa
water
sugar
milk
butter
temperature
Enter
I0.2
Q1.0
MD1
MD5
MD9
MD13
MD17
MD21

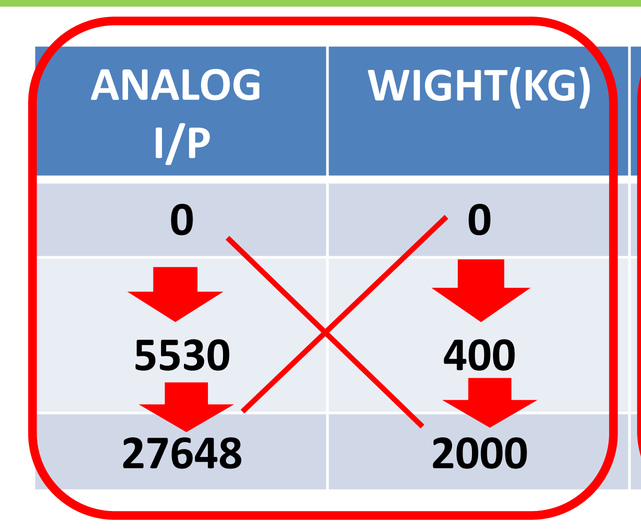
Chocolate production project:

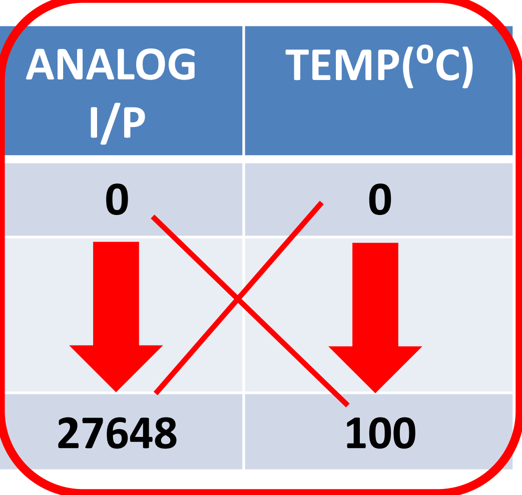


مطلوب تجميع مكونات الشيكولاتة من كاكاو وماء وسكر ولبن وزبدة عبر إدخال وزن كل كمية من الخارج بحد أقصى 400 كجم لكل مكون(شاشة/ برنامج PLC) وبعد التحقق من الأوزان يتم انزال الكاكاو يليه الماء يليه السكر يليه اللبن يليه الزبدة لوجود حساس وزن واحد ثم يتم خلط المكونات عن طريق الخلاط لمدة 5 ثواني ثم يتم تسخين الخليط عند درجة الحرارة المطلوبة من الخارج ثم يتم انزال الخليط علي عدد من الكراتين بحيث تكون عبوة كل كرتونة بحد أقصي ربع الوزن الأقصي للخزان و هو 2000 كجم أي 500كجم

CHOCOLATE PRODUCTION:









WANTED TOTAL WEIGHT VALUE = [WIGHT(KG)* 5530] / 400

WANTED TEMP VALUE = [TEMP(°C)* 27648] / 100

مجموع المطلوب من المكونات		
MD65	+ MD69	=MD89 (COCOA+ WATER)
MD89	+ MD73	=MD93 (COCOA + WATER + SUGAR)
MD93	+ MD77	=MD97 (COCOA + WATER+ SUGAR+MILK)
MD97	+ MD81	=MD101(COCOA + WATER+ SUGAR+MILK+BUTTER)

CHOCOLATE PRODUCTION:



MD1	MD41	MD65
MD5	MD45	MD69
MD9	MD49	MD73
MD13	MD53	MD77
MD17	MD57	MD81
MD21	MD61	MD85

CONVERT WEIGHT / TEMPERATURE INTO MEASURING VALUE

PIW752	MD25	MD29
PIW754	MD33	MD37

CONVERT ANALOG INPUT INTO REAL VALUE
I→DI , DI→R

عبوة الكرتونة = العبوة القصوى للخزان/ 4

عبوة الكرتونة = 2000 كجم / 4 = 500 كجم ⟵ القراءة = 6912

عبوة الكرتونة المطلوبة كل مرة = الوزن المقاس المتبقي–ربع الوزن الاقصي

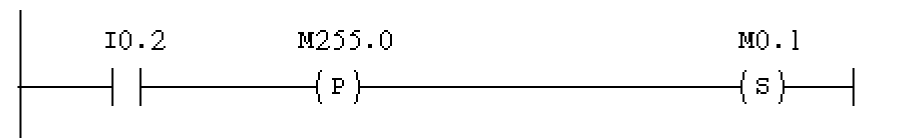
CHOCOLATE PRODUCTION:



Network 1 : Title:

I0.0
I0.1
M0.0
M0.0

Network 2 : Title:



Network 3 : Title:

CMP >R
MD1 — IN1
4.000000e+002 — IN2

CMP >R
MD5 — IN1
4.000000e+002 — IN2

CMP >R
MD9 — IN1
4.000000e+002 — IN2

CMP >R
MD13 — IN1
4.000000e+002 — IN2

CMP >R
MD17 — IN1
4.000000e+002 — IN2

CMP ==R
MD21 — IN1
1.000000e+002 — IN2

M0.6

M0.1
(R)





Network 4: Title:

M0.1 —| |— M255.1 —(P)—

MUL_R IN1	MUL_R IN2	MUL_R OUT	DIV_R IN1	DIV_R IN2	DIV_R OUT
MD1	5.530000e+003	MD41	MD41	4.000000e+002	MD65
MD5	5.530000e+003	MD45	MD45	4.000000e+002	MD69
MD9	5.530000e+003	MD49	MD49	4.000000e+002	MD73
MD13	5.530000e+003	MD53	MD53	4.000000e+002	MD77
MD17	5.530000e+003	MD57	MD57	4.000000e+002	MD81
MD21	2.764800e+004	MD61	MD61	1.000000e+002	MD85

(Each MUL_R and DIV_R box: EN, ENO, IN1, IN2, OUT)

CHOCOLATE PRODUCTION:



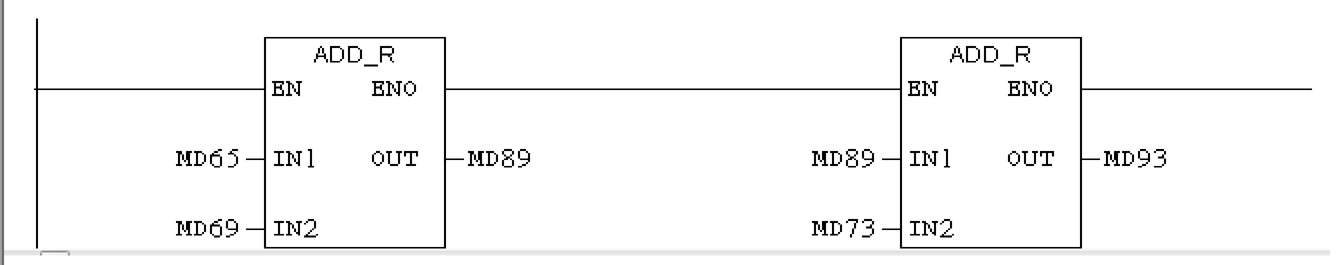
Network 5 : Title:



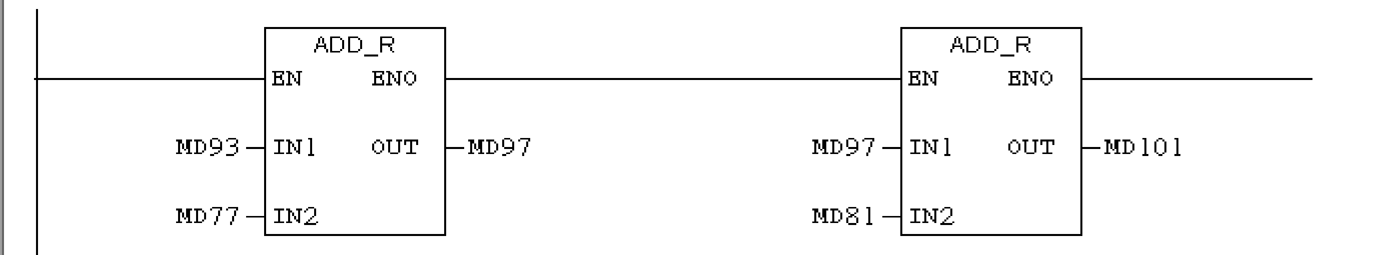
Network 6 : Title:



Network 7 : Title:



Network 9 : Title:



CHOCOLATE PRODUCTION:





M0.0 M0.1 M0.4 CMP <R Q0.0
MD29 IN1
MD65 IN2

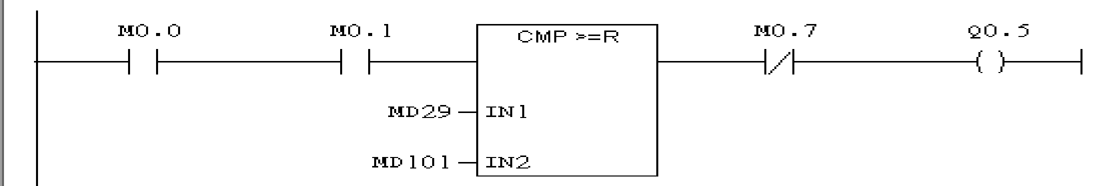
CMP >=R CMP <R Q0.1
MD29 IN1 MD29 IN1
MD65 IN2 MD89 IN2

CMP >=R CMP <R Q0.2
MD29 IN1 MD29 IN1
MD89 IN2 MD93 IN2

CMP >=R CMP <R Q0.3
MD29 IN1 MD29 IN1
MD93 IN2 MD97 IN2

CMP >=R CMP <R Q0.4
MD29 IN1 MD29 IN1
MD97 IN2 MD101 IN2

Network 11: Title:



CHOCOLATE PRODUCTION:



Network 12 : Title:

FC80
Timer On Delay – Retentive
"TONR"

EN — ENO
M0.0 — M0.1 — CMP >=R (IN1: MD29, IN2: MD101) — TMR_EN — Q — M0.7
CMP ==R (IN1: MD200, IN2: 0.000000e+000) — M0.6 — RESET
L#5000 — PV
#OB1_PREV_CYCLE
Cycle time of previous

Network 13 : Title:

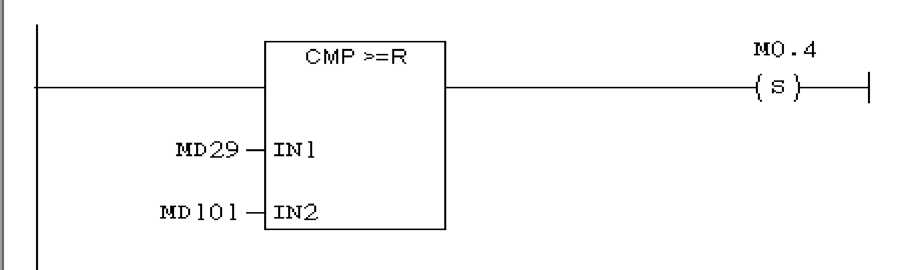
M0.0 — M0.1 — M0.7 — M0.3 (normally closed) — CMP <R (IN1: MD37, IN2: MD85) — Q0.6 ( )

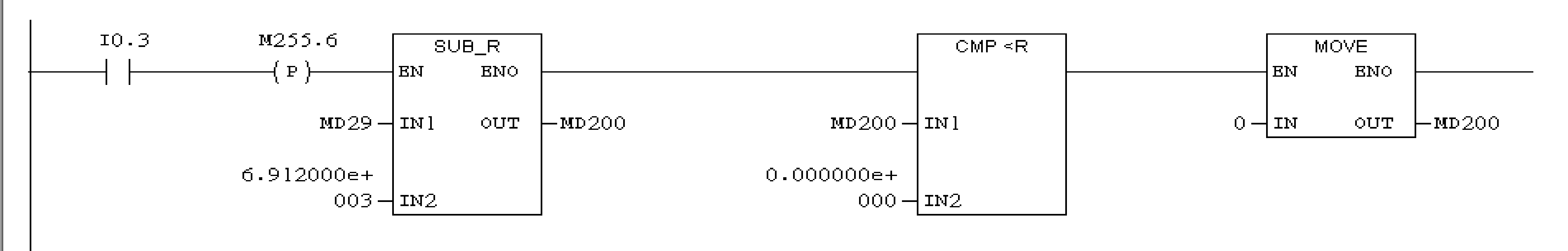
Network 14 : Title:

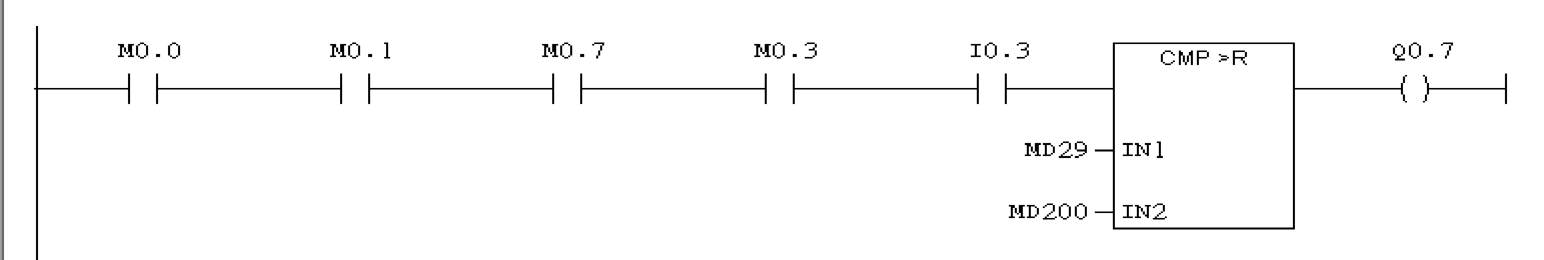
CMP <R (IN1: MD37, IN2: MD85) — M255.4 (N) — M0.3 (S)

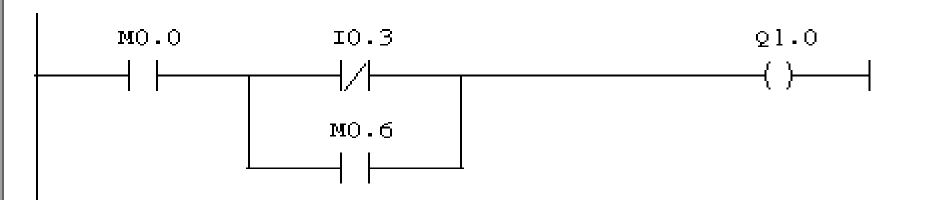
CHOCOLATE PRODUCTION:





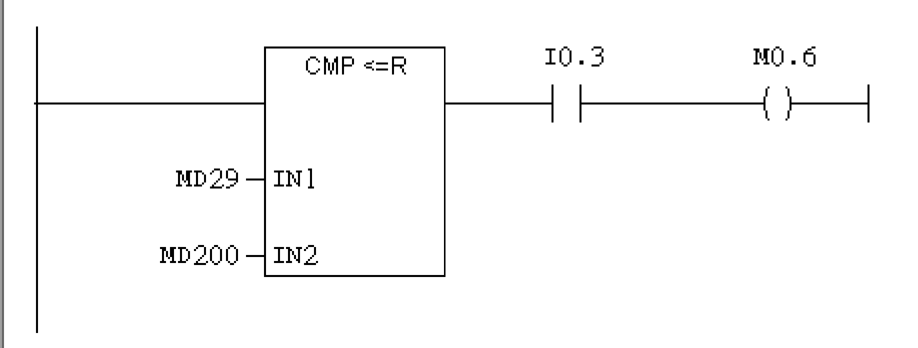


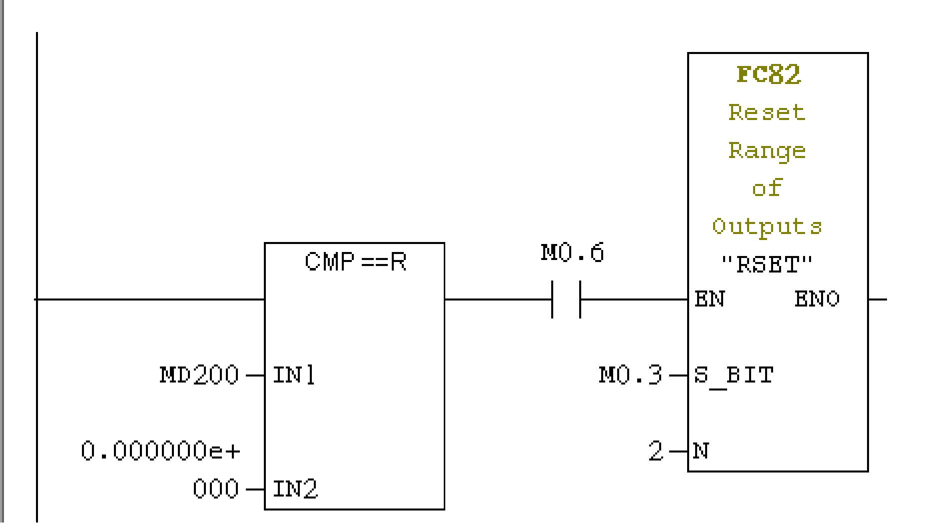




CHOCOLATE PRODUCTION:







Automatic Store:



-2 -1 1 2

X X X X

X X X X

2 I1.0

Y(Q0.2)

1 I0.7

I0.0 I0.1 I0.2 I0.3 I0.4

-X(Q0.1)

X(Q0.0)

X X X X

-1 I0.6

-Y(Q0.3)

X X X X

-2 I0.5

MW130 MW132

I1.4 Start

Stop I1.5

0 0 0 0

0 0 0 0

Row Column

Store in order I1.6

Get I1.7

Store randomly I2.0

shift I2.1

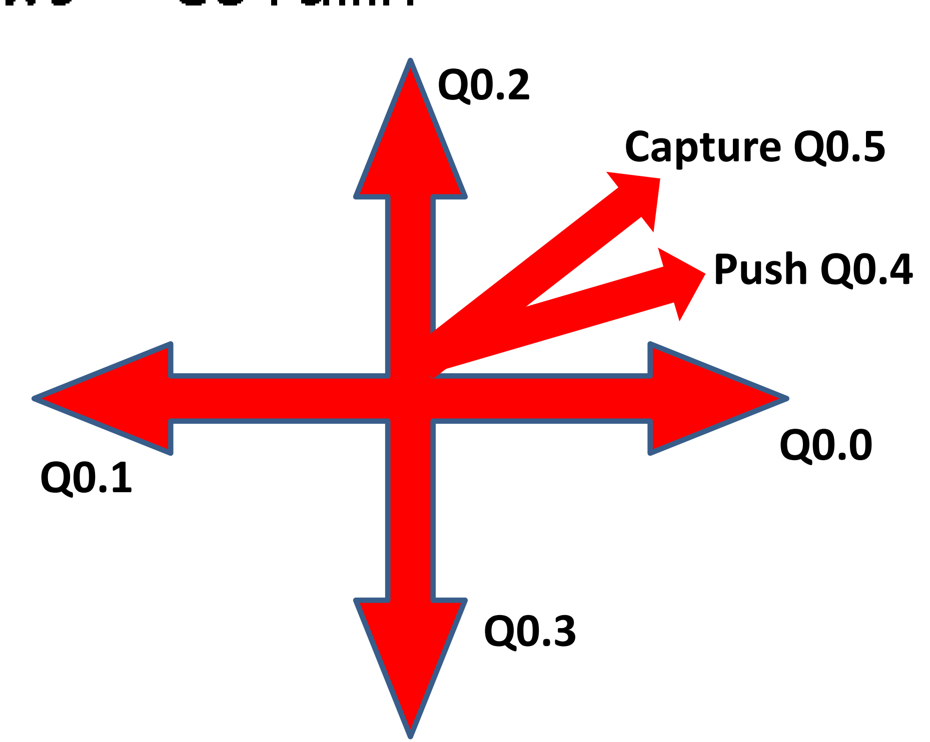
Automatic store:




```
i0.0 s1
i0.1 s2
i0.2 s3
i0.3 s4
i0.4 s5
i0.5 s6
i0.6 s7
i0.7 s8
i1.0 s9

i1.2 push end
i1.3 capture end
i1.4 on
i1.5 off
i1.6 order
i1.7 get
i2.0 random
i2.1 shift
```

```
q0.0 right
q0.1 left
q0.2 up
q0.3 down
q0.4 push
q0.5 capture
iw3  row
iw5  column
```





Automatic Store:

-2 -1 1 2

M14.3 M14.2 M14.1 M14.0 2 I1.0

M14.7 M14.6 M14.5 M14.4 1 I0.7

I0.0 I0.1 I0.2 I0.3 I0.4

M15.3 M15.2 M15.1 M15.0 -1 I0.6

M15.7 M15.6 M15.5 M15.4 -2 I0.5

I1.4 Start

Stop I1.5

Row

Column

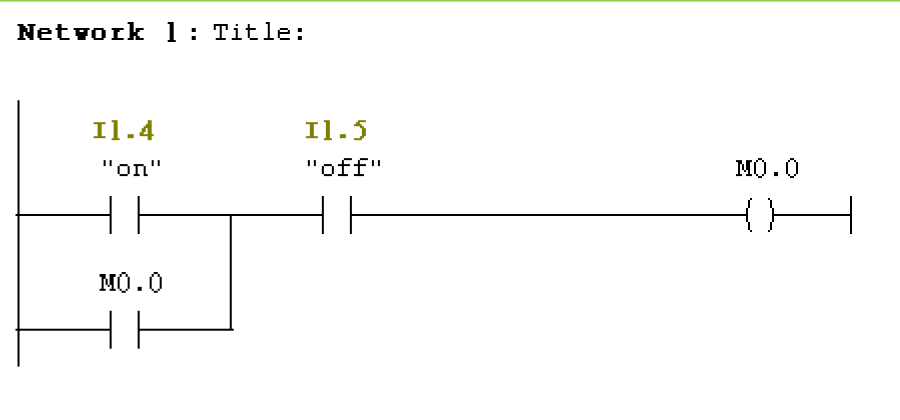
Store in order I1.6

Get I1.7

Store randomly I2.0

shift I2.1

Automatic store:



Network 2 : Title:

M17.5
"out"

CMP >I
MW6 — IN1
2 — IN2

CMP >I
MW8 — IN1
2 — IN2

CMP ==I
MW6 — IN1
0 — IN2

CMP ==I
MW8 — IN1
0 — IN2

CMP <I
MW6 — IN1
-2 — IN2

CMP <I
MW8 — IN1
-2 — IN2

Automatic store:



Network 3 : Title:

M17.0, M17.1, M17.2, M17.3 — M17.4 "invalid" ( )

Network 4 : Title:

I1.6 "order", M17.4 "invalid", CMP <>I (MW2 — IN1, -3 — IN2), M0.1, M0.2, M0.3, M17.5 "out", M0.1 ( )

Network 5 : Title:

I1.7 "get", M17.4 "invalid", M0.2, M0.1, M0.3, M17.5 "out", M0.2 ( )

Network 6 : Title:

I2.0 "random", M17.4 "invalid", M0.3, M0.1, M0.2, M17.5 "out", M0.3 ( )

Network 7 : Title:

I1.6 "order", M26.4 (P), MOVE (EN, ENO, MW2 — IN, OUT — MW6), MOVE (EN, ENO, MW4 — IN, OUT — MW8)

Automatic store:



Network 8 : Title:

I1.7 "get" — M26.6 (P) — MOVE (EN, ENO; IN: MW130, OUT: MW6) — MOVE (EN, ENO; IN: MW132, OUT: MW8)

I2.0 "random" (parallel with I1.7)

Network 9 : Title:

I2.1 "shift pos" — M26.6 (P) — MOVE (EN, ENO; IN: MW130, OUT: MW2) — MOVE (EN, ENO; IN: MW132, OUT: MW4)

Network 10 : Title:

I0.2 — [M0.1 / M0.2 / M0.3 in parallel] — ( ) M0.4 "x/-x"

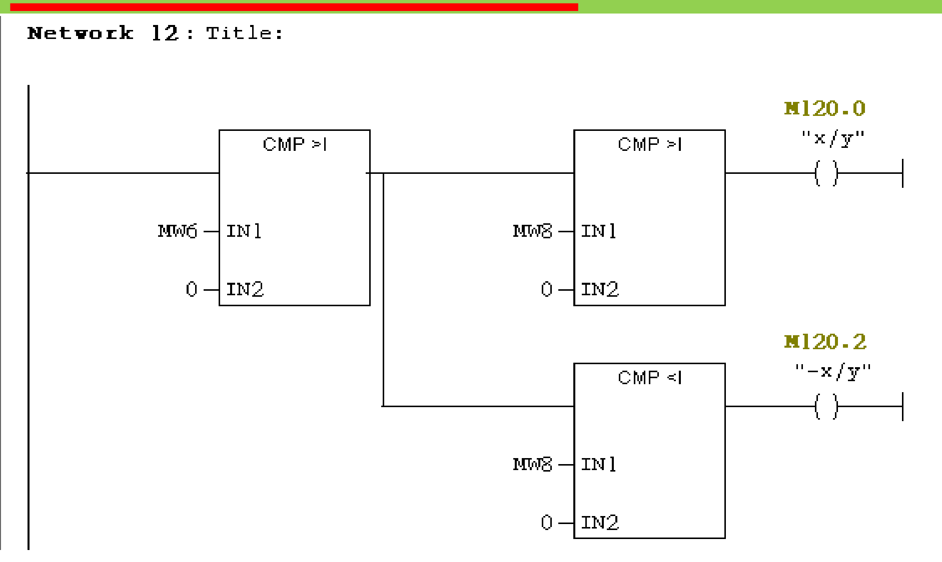
Parallel branches: I0.0, I0.1, I0.3, I0.4

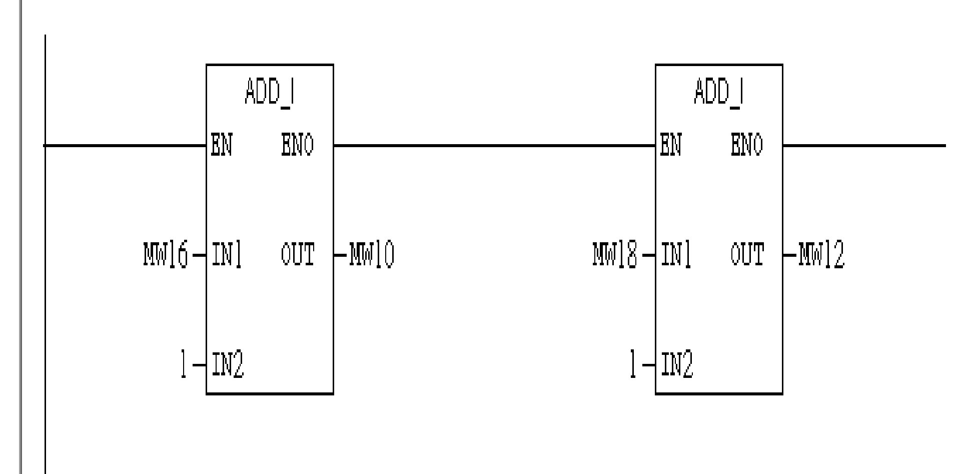
Network 11 : Title:

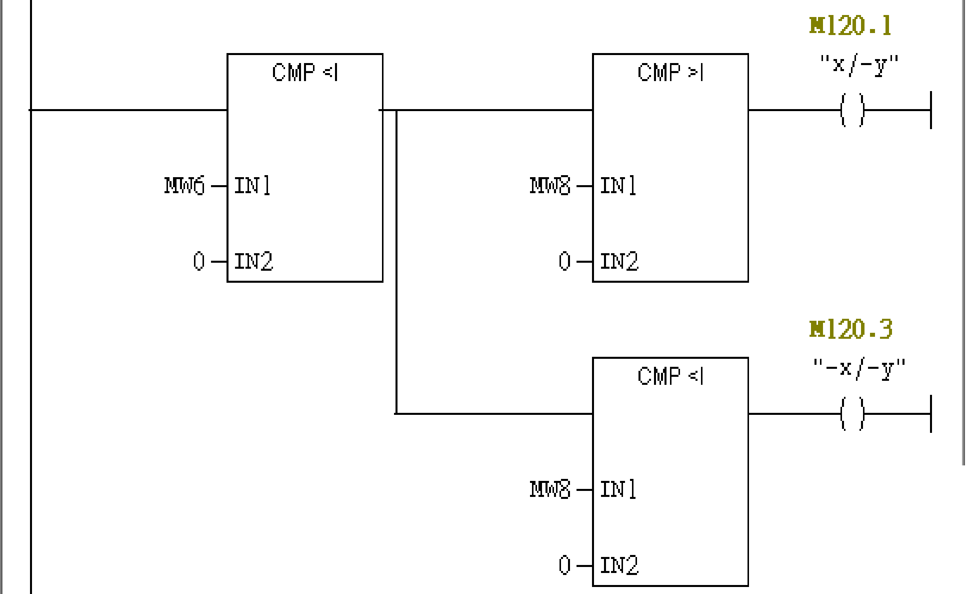
[I0.5 / I0.6 / I0.7 / I1.0 / I0.2 in parallel] — ( ) M0.5 "y/-y"

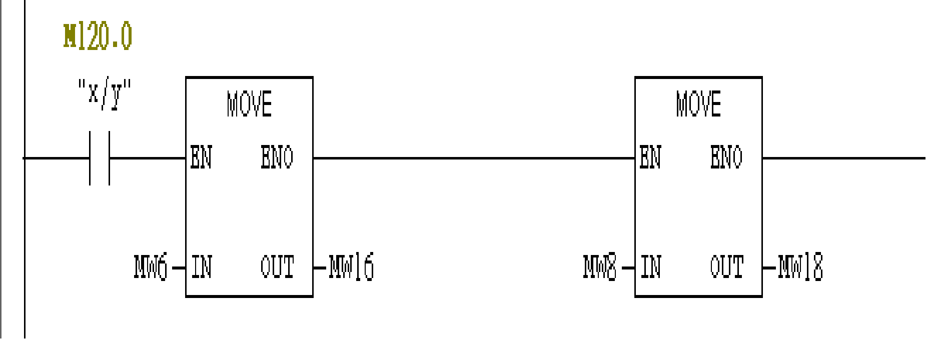
Automatic store:











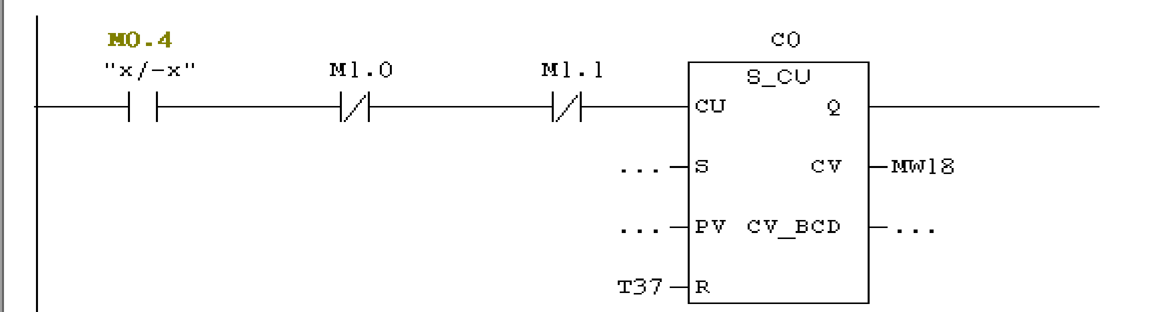
Automatic store:











Automatic store:



Network 20 : Title:

M0.5
"y/-y"
M1.0
M1.1
C1
S_CU
CU Q
... S CV MW20
... PV CV_BCD ...
T37 R

M120.0
M0.0
M0.1
"x/y"
M0.2
M0.3

CMP <I
MW18 IN1
MW12 IN2
M200.0

CMP <I
MW20 IN1
MW10 IN2
M201.0

M1.0
M1.1

CMP <I
MW22 IN1
MW10 IN2
M201.4

CMP <I
MW24 IN1
MW12 IN2
M200.4

Automatic store:



M120.1
M0.0 M0.1 "x/-y"
M0.2
M0.3

CMP <I
MW18 — IN1
MW12 — IN2
M200.1

CMP <I
MW20 — IN1
MW10 — IN2
M201.5

M1.0
M1.1

CMP <I
MW22 — IN1
MW10 — IN2
M201.1

CMP <I
MW24 — IN1
MW12 — IN2
M200.5

Automatic store:



M120.2

M0.0 M0.1 "-x/y"

M0.2

M0.3

CMP <I
MW18 — IN1
MW12 — IN2
M200.6 ( )

CMP <I
MW20 — IN1
MW10 — IN2
M201.2 ( )

M1.0

M1.1

CMP <I
MW22 — IN1
MW10 — IN2
M201.6 ( )

CMP <I
MW24 — IN1
MW12 — IN2
M200.2 ( )

Automatic store:



M120.3
"-x/-y"

M0.0
M0.1
M0.2
M0.3

CMP <I
MW18 — IN1
MW12 — IN2
M200.7 ( )

CMP <I
MW20 — IN1
MW10 — IN2
M201.7 ( )

M1.0
M1.1

CMP <I
MW22 — IN1
MW10 — IN2
M201.3 ( )

CMP <I
MW24 — IN1
MW12 — IN2
M200.3 ( )

Automatic store:



Network 25 : Title:

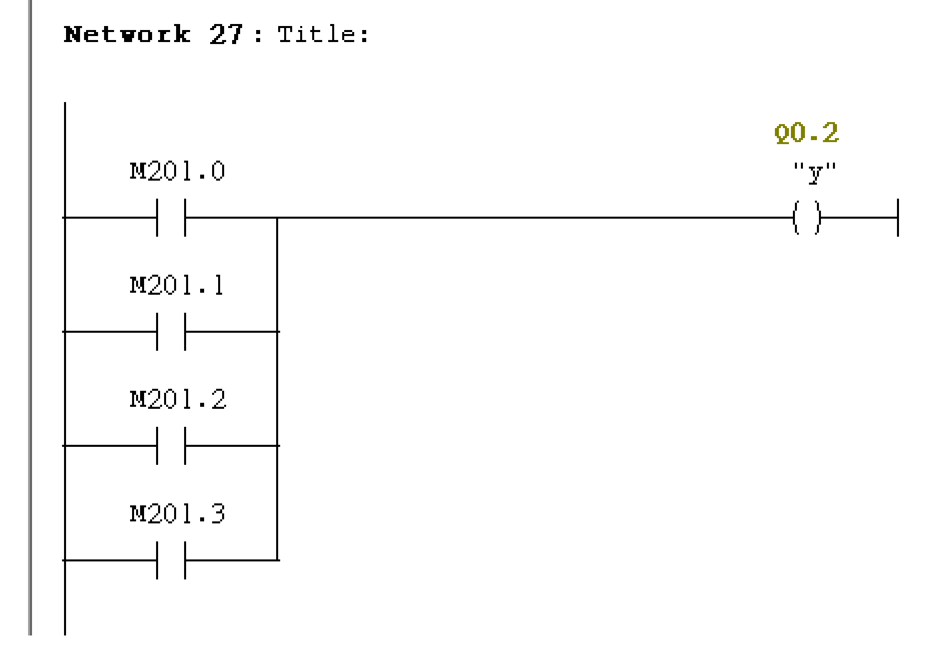
Q0.0
"x"

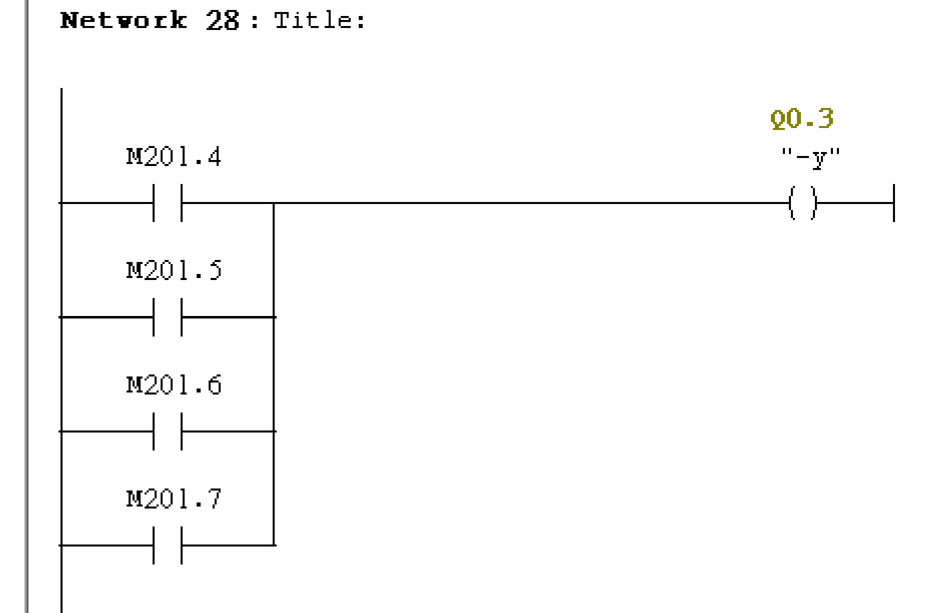
M200.0
M200.1
M200.2
M200.3

Network 26 : Title:

Q0.1
"-x"

M200.4
M200.5
M200.6
M200.7





Automatic store:



Network 29 : Title:

Network 30 : Title:

Network 31 : Title:

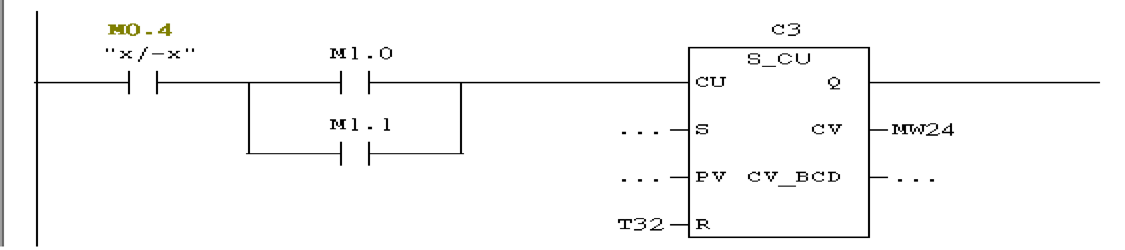
Automatic store:



Network 32 : Title:

M0.5
"y/-y"
M1.0
M1.1
C2
S_CU
CU
Q
S
CV
PV
CV_BCD
R
...
...
T37
MW22
...

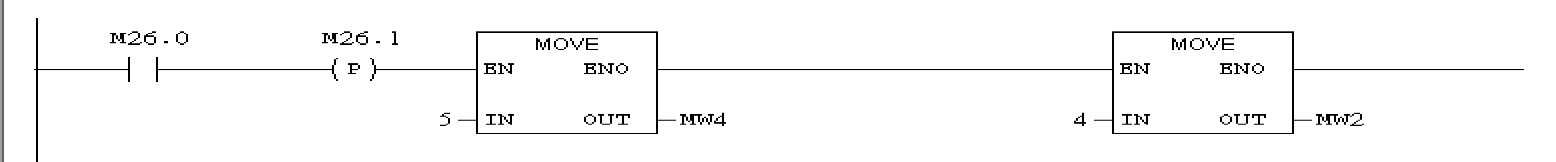
Network 33 : Title:



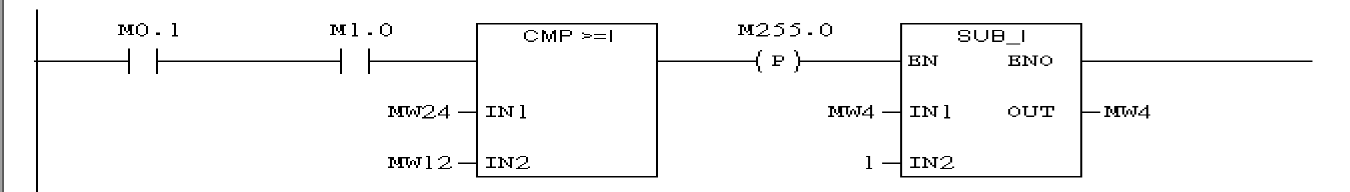
Network 34 : Title:



Network 35 : Title:

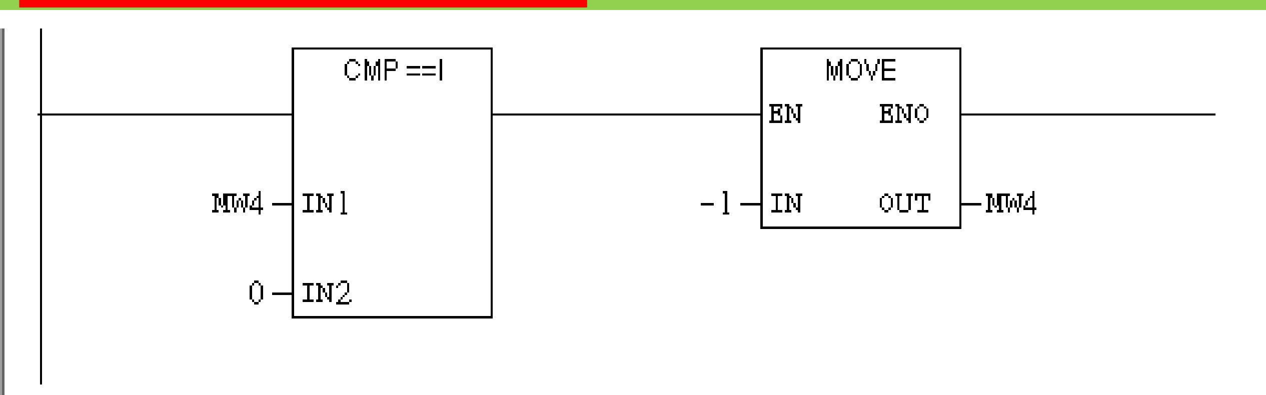


Network 36 : Title:

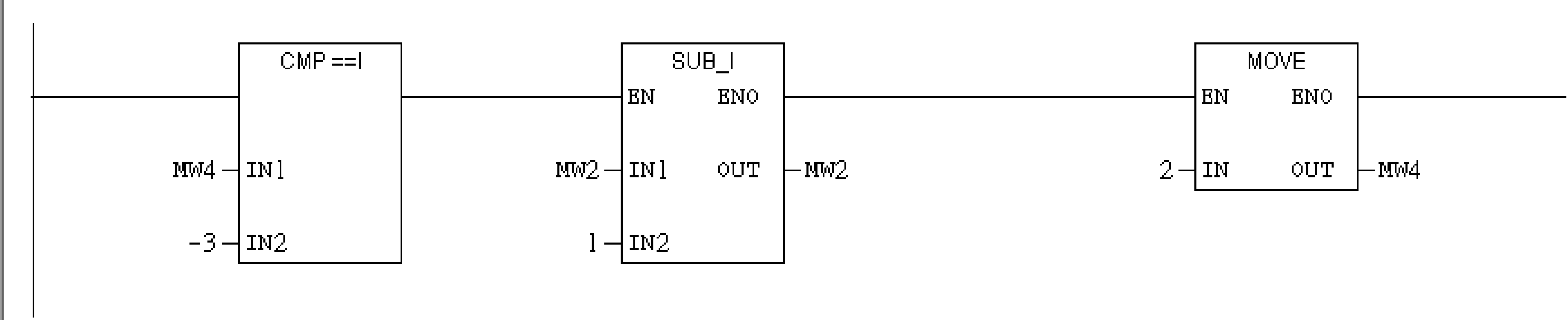


Automatic store:

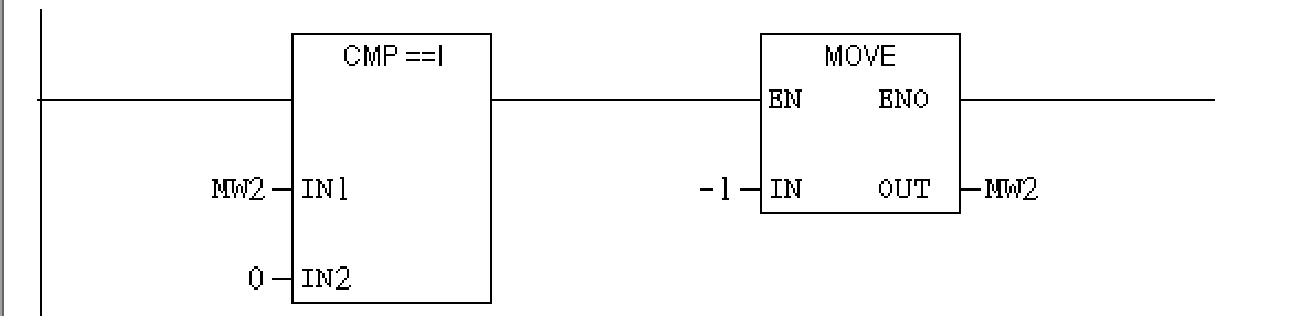




Network 38 : Title:



Network 39 : Title:



Automatic store:



Network 40 : Title:

CMP ==I
MW6 — IN1
2 — IN2

CMP ==I
MW8 — IN1
2 — IN2

M1.0 M14.0 (S)
M1.1 M14.0 (R)

CMP ==I
MW8 — IN1
1 — IN2

M1.0 M14.1 (S)
M1.1 M14.1 (R)

CMP ==I
MW8 — IN1
-1 — IN2

M1.0 M14.2 (S)
M1.1 M14.2 (R)

CMP ==I
MW8 — IN1
-2 — IN2

M1.0 M14.3 (S)
M1.1 M14.3 (R)

Automatic store:



Network 41 : Title:

CMP ==I
MW6 — IN1
1 — IN2

CMP ==I
MW8 — IN1
2 — IN2
M1.0 M14.4 (S)
M1.1 M14.4 (R)

CMP ==I
MW8 — IN1
1 — IN2
M1.0 M14.5 (S)
M1.1 M14.5 (R)

CMP ==I
MW8 — IN1
-1 — IN2
M1.0 M14.6 (S)
M1.1 M14.6 (R)

CMP ==I
MW8 — IN1
-2 — IN2
M1.0 M14.7 (S)
M1.1 M14.7 (R)

Automatic store:



Network 42 : Title:

CMP ==I
MW6 — IN1
-1 — IN2

CMP ==I
MW8 — IN1
2 — IN2
M1.0 — M15.0 (S)
M1.1 — M15.0 (R)

CMP ==I
MW8 — IN1
1 — IN2
M1.0 — M15.1 (S)
M1.1 — M15.1 (R)

CMP ==I
MW8 — IN1
-1 — IN2
M1.0 — M15.2 (S)
M1.1 — M15.2 (R)

CMP ==I
MW8 — IN1
-2 — IN2
M1.0 — M15.3 (S)
M1.1 — M15.3 (R)

Automatic store:



Network 43 : Title:

CMP ==I
MW6 — IN1
-2 — IN2

CMP ==I
MW8 — IN1
2 — IN2

M1.0 M15.4
(S)

M1.1 M15.4
(R)

CMP ==I
MW8 — IN1
1 — IN2

M1.0 M15.5
(S)

M1.1 M15.5
(R)

CMP ==I
MW8 — IN1
-1 — IN2

M1.0 M15.6
(S)

M1.1 M15.6
(R)

CMP ==I
MW8 — IN1
-2 — IN2

M1.0 M15.7
(S)

M1.1 M15.7
(R)

Automatic store:



Network 44 : Title:

CMP ==I
MW6 — IN1
2 — IN2

CMP ==I
MW8 — IN1
2 — IN2
M14.0

CMP ==I
MW8 — IN1
1 — IN2
M14.1

CMP ==I
MW8 — IN1
-1 — IN2
M14.2

CMP ==I
MW8 — IN1
-2 — IN2
M14.3

M17.0
( )

Automatic store:



Network 45 : Title:

Comparator	IN1	IN2	Output contact
CMP ==I	MW6	1	(series)
CMP ==I	MW8	2	M14.4
CMP ==I	MW8	1	M14.5
CMP ==I	MW8	-1	M14.6
CMP ==I	MW8	-2	M14.7

Coil: M17.1 ( )

Automatic store:



Network 46 : Title:

Automatic store:



Network 47 : Title:

Automatic store:



T37

CMP >=I | CMP <>I | S_ODT

MW24 — IN1
MW12 — IN2

MW24 — IN1
0 — IN2

S — Q
S5T#2S — TV — BI — ...
... — R — BCD — ...

M0.6 (R)
M0.7 (R)
M1.0 (R)
M1.1 (R)
M0.1 (R)
M0.2 (R)
M0.3 (R)

T32

S_ODT
S — Q
S5T#10MS — TV — BI — ...
... — R — BCD — ...

ENCODER AND HIGH SPEED COUNTER:



ENCODER:

هو جهاز يستخدم لتتبع حركة الموتور يمينا ام يسارا سريع أو بطئ ويمكن استخدامه لقياس سرعة الموتورأو تحديد وجهة الموتور اي متي يتحرك واين ومتي يتوقف.

ENCODER IDEA OF WORK:

فكرة العمل قائمة على فكرة من اثنين :

-- وجود LED و photodiode حيث تصدر LED الضوء فاذا استقبل سطح فاتح اللون هذا الضوء فانه يعكس الضوء الي PHOTODIODE فيقوم باعطاء اشارة واذا قابل الضوء سطح داكن فان PHOTODIODEلا يستقبل الضوء وبالتالي تنقطع الاشارة كما هو في الغالب في ROTARY ENCODER .

-- وجود MAGNETIC SENSORS وقطع مغناطيس فكلما وجد MAGNETIC SENSOR مغناطيس أمامه فانه يصدراشارة وان لم يجد تنقطع هذه الاشارة كما هو في الغالب في absolute encoder .

ENCODER TYPES:



INCREMENTAL / ROTARY ENCODER:

COUPLING

ROTARY ENCODER

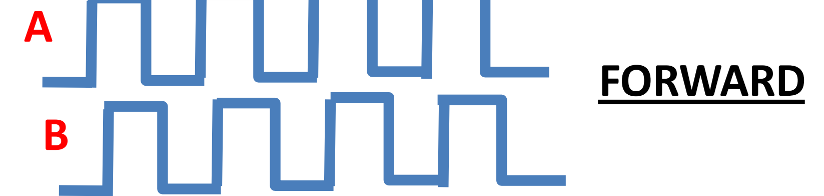
24V	بني	
0V	أزرق	
OUT Z	برتقالي	
OUT A	أسود	
OUT B	أبيض	

لهذا ال ENCODER طرفين للتغذية حيث يأخذ 12-24VDC علي الطرفين البني والأزرق ويعمل علي نظامين :

-- الخرج Z ....وهو يخرج مجموعة من النبضات (يتزايد عددها مع زيادة سرعة الموتور) طالما يتحرك الموتور سواء يمينا أو يسارا ويستخدم هذا النظام للاستدلال علي الحركة وقياس السرعة



-- الخرجين A-B ....ويستخدما لمعرفة وجهة الموتور اذا كان يتحرك يمينا او يسارا(عد تصاعدى أوتنازلي)



A

B



ENCODER TYPES:



INCREMENTAL / ROTARY ENCODER:

ENCODER TYPES:



ABSOLUTE/BINARY ENCODER:

COUPLING

BINARY ENCODER

24V

0V

OUT

12-bit/14-bit

لهذا ال ENCODER طرفين للتغذية حيث يأخذ 12-24VDC وله 12 خرج أو 14 خرج لتحديد الزاوية التي يتحركها الموتور من 0 الي 360 .

B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1	B0	DEGREE
0	0	0	0	0	0	0	0	0	0	0	0	0
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
1	1	1	1	1	1	1	1	1	1	1	1	360

ENCODER WITH PLC:



هذا الكلام ينطبق علي أجهزة PLC التي تدعم HIGH SPEED COUNTER لأن العدادات العادية لا تستطيع التواصل مع السرعة العالية لحركة الموتور وهذا من خلال الانماط الاتية:

Single phase counter with one direction:

Current value loaded to 0, preset loaded to 4, counting direction set to Up.
Counter enable bit set to enabled.

PV=CV interrupt generated
Direction changed within interrupt routine

Clock 1 0

Internal Direction Control (1 = Up) 1 0

Counter Current Value 0

1 2 3 4 3 2 1 0 -1

لمراقبة حركة الموتور سريعا أم بطيئا للتوجيه ولقياس سرعته ويمكن تحديد اذا كان العداد تصاعديا ام تنازليا من خلال INSTRUCTION WIZARD الخاص ببرنامج PLC .

ENCODER WITH PLC:



Single phase counter with one direction with external input:

Current value loaded to 0, preset loaded to 4, counting direction set to Up.
Counter enable bit set to enabled.

PV=CV interrupt generated

PV=CV interrupt generated and
Direction Changed interrupt generated

Clock 1 0

External Direction Control (1 = Up) 1 0

Counter Current Value 0

1 2 3 4 5 4 3 2 1

لمراقبة حركة الموتور سريعا أم بطيئا للتوجيه ولقياس سرعته ويمكن تحديد اذا كان العداد تصاعديا ام تنازليا من خلال اعطاء الاشارة علي نقطة الدخل المعرفة من خلال برنامج PLC

ENCODER WITH PLC:



Single phase counter with two directions:

Current value loaded to 0, preset loaded to 4, initial counting direction set to Up.
Counter enable bit set to enabled.

PV=CV interrupt generated

PV=CV interrupt generated and
Direction Changed interrupt generated

Count Up Clock 1 0

Count Down Clock 1 0

Counter Current Value 0

1 2 3 4 5 4 3 2 1

اثنان من نقاط دخل PLC أحدهما يزيد عدد العداد والأخر ينقص عدد العداد ويمكن معرفتهما من خلال instruction wizard الخاص ببرنامج plc .

ENCODER WITH PLC:



two phase counter A/B(1X):

Current value loaded to 0, preset loaded to 3, initial counting direction set to Up.
Counter enable bit set to enabled.

PV=CV interrupt generated

PV=CV interrupt generated and Direction Changed interrupt generated

Phase A Clock 1 0

Phase B Clock 1 0

Counter Current Value 0

1 2 3 4 3 2

اثنان من نقاط دخل PLC ....A-B يمكن معرفتهما من خلال instruction wizard الخاص ببرنامج PLC فاذا سبق A ال B فهذا يزيد العدد ولو سبق B ال A فان ذلك ينقص العدد ولو أضفنا RESET خارجي فان العدد الموجب يعني وجهة الموتور FORWARD واذا كان العدد سالب فهذا يعني ان وجهة الموتور REVERSE.

ENCODER WITH PLC:



two phase counter A/B(4X):

Current value loaded to 0, preset loaded to 9, initial counting direction set to Up. Counter enable bit set to enabled.

PV=CV interrupt generated

Direction Changed interrupt generated

PV=CV interrupt generated

Phase A Clock 1 0

Phase B Clock 1 0

Counter Current Value 0

1 2 3 4 5 6 7 8 9 10 11 12 11 10 9 8 7 6

اثنان من نقاط دخل PLC ....A-B يمكن معرفتهما من خلال instruction wizard الخاص ببرنامج PLC فاذا سبق A ال B فهذا يزيد العدد مع A مرة ومع B مرة أخري ولو سبق B ال A فان ذلك ينقص العدد مع B مرة ومع A مرة أخرى وهذا يساعد في التأكد من صحة حركة الموتور في الاتجاه المناسب.

ENCODER WITH PLC:



HW Config - [SIMATIC 300(1) (Configuration) -- Hasan]

Station Edit Insert PLC View Options Window Help

(0) UR

1	
2	**CPU 313C**
2.2	*DI24/DO16*
2.3	*AI5/AO2*
2.4	*Count*
3	
4	
5	
6	
7	
8	

(0) UR

Slot	Module ...	O...	Fi...	M...	I address	Q address	Comment
1							
2	**CPU 313C**	**6ES7**	**V2.6**	**2**			
2.2	*DI24/DO16*				*124...126*	*124...125*	
2.3	*AI5/AO2*				*752...761*	*752...755*	
2.4	*Count*				*768...783*	*768...783*	
3							
4							
5							
6							
7							
8							
9							
10							
11							

ENCODER WITH PLC:



HW Config - [SIMATIC 300(1) (Configuration) -- Hasan]

Station Edit Insert PLC View Options Window Help

(0) UR

1	
2	CPU 313C
2.2	DI24/DO16
2.3	AI5/AO2
2.4	Count
3	
4	
5	
6	
7	
8	

Properties - Count - (R0/S2.4)

Channel: 0 Operating mode: Not configured

- Not configured
- Count continuously
- Count once
- Count periodically
- Frequency counting
- Pulse-width modulation

General | Addresses | Basic Parameters

Short Description: Count

3 channels; counti... kHz, pulse width modulation with 2.5 kHz switching frequency, counting frequency

Name: Count

Comment:

OK Default Cancel Help

(0) UR

Slot	Module	O...	Fi...
1			
2	CPU 313C	6ES7	V2.6
2.2	DI24/DO16		
2.3	AI5/AO2		
2.4	Count		
3			
4			
5			
6			
7			
8			
9			
10			
11			

ENCODER WITH PLC:



HW Config - [SIMATIC 300(1) (Configuration) -- Hasan]

Station Edit Insert PLC View Options Window Help

(0) UR

1	
2	CPU 313C
2.2	DI24/DO16
2.3	AI5/AO2
2.4	Count
3	
4	
5	
6	
7	
8	

(0) UR

Slot	Module	...	O...	Fi...
1				
2	CPU 313C		6ES7	V2.6
2.2	DI24/DO16			
2.3	AI5/AO2			
2.4	Count			
3				
4				
5				
6				
7				
8				
9				
10				
11				

Properties - Count - (R0/S2.4)

Channel: 0 Operating mode: Count continuously

General | Addresses | Basic Parameters | Count

Operating Parameters
Main count direction: None
Comparison value: 0
Gate function: Cancel count
Hysteresis: 0
Start value:
End value:
Time base:

Input
Signal evaluation: Rotary encoder double
- Pulse / direction
- Rotary encoder single
- Rotary encoder double
- Rotary encoder quadruple

Output
Characteristics of the output: No comparison
Pulse duration: ms

Hardware Interrupt
- Hardware gate opening
- Hardware gate closing
- On reaching comparator
- On count pulse
- Overflow
- Underflow

Max. frequency
Counting signals/HW gate: 30 kHz
Latch: 10 kHz

Assignment of the input data
- Count value
- Period time

OK | Default | Cancel | Help

ENCODER WITH PLC S7-300 CPU313C:



NAME	INPUT(X2)	COUNTING/FREQUENCY	
HC0	I124.0	CH0	TRACK A/PULSE
	I124.1	CH0	TRACK B/DIRECTION
	I124.2	CH0	H/W GATE
HC1	I124.3	CH1	TRACK A/PULSE
	I124.4	CH1	TRACK B/DIRECTION
	I124.5	CH1	H/W GATE
HC2	I124.6	CH2	TRACK A/PULSE
	I124.7	CH2	TRACK B/DIRECTION
	I125.0	CH2	H/W GATE

X1

X2

ENCODER WITH PLC S7-300 CPU313C:



LAD/STL/FBD - [OB1 -- "Cycle Execution" -- S7_Pro4\SIMATIC 300 Station\CPU312(1)\...\OB1]

File Edit Insert PLC Debug View Options Window Help

Contents Of: 'Environment\Interface'

Interface | Name

- Libraries
  - stdlibs
  - Standard Library
    - Miscellaneous Blocks
    - TI-S7 Converting Blocks
    - PID Control Blocks
    - IEC Function Blocks
    - System Function Blocks
      - SFB0 CTU IEC_TC
      - SFB1 CTD IEC_TC
      - SFB2 CTUD IEC_TC
      - SFB3 TP IEC_TC
      - SFB4 TON IEC_TC
      - SFB5 TOF IEC_TC
      - SFB8 USEND COM_FUNC
      - SFB9 URCV COM_FUNC
      - SFB12 BSEND COM_FUNC
      - SFB13 BRCV COM_FUNC
      - SFB14 GET COM_FUNC
      - SFB15 PUT COM_FUNC
      - SFB16 PRINT COM_FUNC
      - SFB19 START COM_FUNC
      - SFB20 STOP COM_FUNC
      - SFB21 RESUME COM_FUNC
      - SFB22 STATUS COM_FUNC
      - SFB23 USTATUS COM_FUNC

COUNT / TEC_FUNC

Program elements | Call structure

SFB47
Common counter module
"COUNT"

Inputs	Outputs
EN	ENO
... LADDR	STS_GATE ...
... CHANNEL	STS_STRT ...
... SW_GATE	STS_LTCH ...
... CTRL_DO	STS_DO ...
... SET_DO	STS_C_DN ...
... JOB_REQ	STS_C_UP ...
... JOB_ID	COUNTVAL ...
... JOB_VAL	LATCHVAL ...
	JOB_DONE ...
	JOB_ERR ...
	JOB_STAT ...

1: Error | 2: Info | 3: Cross-references | 4: Address info. | 5: Modify | 6: Diagnostics | 7: Comparison

ENCODER WITH PLC S7-300 CPU313C:



Controlling the Counter with SFB 47 "COUNT"

Parameter	Declaration	Data type	Address (Instance DB)	Range of values	Default	Description
LADDR	INPUT	WORD	0	CPU specific	W#16#0300	The I/O address of your submodule, specified by you in "HW Config". If the E and A addresses are not equal, the lower one of the two must be specified.
CHANNEL	INPUT	INT	2	CPU 312C: 0 to 1 CPU 313C: 0 to 2 CPU 314C: 0 to 3	0	Channel number:
SW_GATE	INPUT	BOOL	4.0	TRUE/FALSE	FALSE	Software gate for starting/stopping the counter
CTRL_DO	INPUT	BOOL	4.1	TRUE/FALSE	FALSE	Enable output
SET_DO	INPUT	BOOL	4.2	TRUE/FALSE	FALSE	Control output
JOB_REQ	INPUT	BOOL	4.3	TRUE/FALSE	FALSE	Job initialization (positive edge)

ENCODER WITH PLC S7-300 CPU313C:



Controlling the Counter with SFB 47 "COUNT"

JOB_ID	INPUT	WORD	6	W#16#0000 Job without function W#16#0001 Write count value W#16#0002 Write load value W#16#0004 Write comparison value W#16#0008 Write hysteresis W#16#0010 Write pulse period W#16#0082 Read load value W#16#0084 Read comparison value W#16#0088 Read hysteresis W#16#0090 Read pulse period	W#16#0000	Job number
JOB_VAL	INPUT	DINT	8	-2^{31} up to $+2^{31}-1$	0	Value for write jobs.
STS_GATE	OUTPUT	BOOL	12.0	TRUE/FALSE	FALSE	Status of the internal gate
STS_STRT	OUTPUT	BOOL	12.1	TRUE/FALSE	FALSE	Status of the hardware gate (Start input)
STS_LTCH	OUTPUT	BOOL	12.2	TRUE/FALSE	FALSE	Status of the latch input
STS_DO	OUTPUT	BOOL	12.3	TRUE/FALSE	FALSE	Output status

ENCODER WITH PLC S7-300 CPU313C:



Controlling the Counter with SFB 47 "COUNT"

STS_C_DN	OUTPUT	BOOL	12.4	TRUE/FALSE	FALSE	Status reverse direction. Displayed is always the last direction of count. The value of STS_C_DN is FALSE after the first call of the SFB.
STS_C_UP	OUTPUT	BOOL	12.5	TRUE/FALSE	FALSE	Status forward direction Displayed is always the last direction of count. The value of STS_C_DN is TRUE after the first call of the SFB.
COUNTVAL	OUTPUT	DINT	14	-2^{31} up to $+2^{31}-1$	0	Actual count value
LATCHVAL	OUTPUT	DINT	18	-2^{31} up to $+2^{31}-1$	0	Actual latch value
JOB_DONE	OUTPUT	BOOL	22.0	TRUE/FALSE	TRUE	New job can be started
JOB_ERR	OUTPUT	BOOL	22.1	TRUE/FALSE	FALSE	Faulty job
JOB_STAT	OUTPUT	WORD	24	0 to W#16#FFFF	0	Job error number

ENCODER WITH PLC S7-300 CPU313C:



LAD/STL/FBD - [OB1 -- "Cycle Execution" -- S7_Pro4\SIMATIC 300 Station\CPU312(1)\...\OB1]

File Edit Insert PLC Debug View Options Window Help

- SFB15 PUT COM_FUNC
- SFB16 PRINT COM_FUNC
- SFB19 START COM_FUNC
- SFB20 STOP COM_FUNC
- SFB21 RESUME COM_FUNC
- SFB22 STATUS COM_FUNC
- SFB23 USTATUS COM_FUNC
- SFB29 HS_COUNT COUNTERS
- SFB30 FREQ_MES COUNTERS
- SFB31 NOTIFY_8P COM_FUNC
- SFB32 DRUM TIMERS
- SFB33 ALARM COM_FUNC
- SFB34 ALARM_8 COM_FUNC
- SFB35 ALARM_8P COM_FUNC
- SFB36 NOTIFY COM_FUNC
- SFB37 AR_SEND COM_FUNC
- SFB38 HSC_A_B COUNTERS
- SFB39 POS COUNTERS
- SFB41 CONT_C ICONT
- SFB42 CONT_S ICONT
- SFB43 PULSEGEN ICONT
- SFB44 ANALOG TEC_FUNC
- SFB46 DIGITAL TEC_FUNC
- SFB47 COUNT TEC_FUNC
- SFB48 FREQUENC TEC_FUNC
- SFB49 PULSE TEC_FUNC

COUNT / TEC_FUNC

Program elements | Call structure

Contents Of: 'Environment\Interface'

Interface | Name

DB1

"COUNT"

Input value	Input	Output	Output value
	EN	ENO	
W#16#300	LADDR	STS_GATE	...
0	CHANNEL	STS_STRT	...
M0.0	SW_GATE	STS_LTCH	...
M0.1	CTRL_DO	STS_DO	...
M0.2	SET_DO	STS_C_DN	...
M0.3	JOB_REQ	STS_C_UP	...
W#16#1	JOB_ID	COUNTVAL	MD20
MD1	JOB_VAL	LATCHVAL	...
		JOB_DONE	...
		JOB_ERR	...
		JOB_STAT	...

1: Error | 2: Info | 3: Cross-references | 4: Address info. | 5: Modify | 6: Diagnostics | 7: Compari



ماكينة المقص الكهربى:

Limit2
I0.5

Limit1
I0.4

Limit 4
I0.7

Limit3
I0.6

المقص لأعلى Q125.5

المقص لأسفل Q125.4

الذراع لأعلى Q125.3

الذراع لأسفل Q125.2

MOTOR2
Q125.1

LENGTH VIA MD200

Photo
I126.2

MOTOR1
Q125.0

START I126.0

STOP I126.1

-- ENCODER OUT TO I124.0(CTU)

-- 1000 pulse for 30cm



ماكينة المقص الكهربى:

(0) UR

1	
2	CPU 313C
2.2	DI24/DO16
2.3	AI5/AO2
2.4	Count
3	
4	
5	
6	
7	

(0) UR

Slot	Module	...	O...	Fi...	M...	I address	Q addr...
1							
2	CPU 313C		6ES7	V2.6	2		
2.2	DI24/DO16					124...126	124...125
2.3	AI5/AO2					752...761	752...755
2.4	Count					768...783	768...783
3							
4							
5							
6							
7							
8							
9							
10							
11							

Properties - Count - (R0/S2.4)

Channel: 0 Operating mode: Count continuously

General | Addresses | Basic Parameters | Count

Operating Parameters

Main count direction: None Comparison value: 0

Gate function: Cancel count Hysteresis: 0

Start value:
End value: Time base:

Input

Signal evaluation: Pulse / direction

Hardware gate

Count direction inverted

Output

Characteristics of the output: No comparison

Pulse duration: ms

Hardware Interrupt

Hardware gate opening

Hardware gate closing

On reaching comparator

On count pulse

Overflow Underflow

Max. frequency

Counting signals/HW gate: 30 kHz

Latch: 10 kHz

Assignment of the input data

Count value Period time

OK Default Cancel Help



ماكينة المقص الكهربى:

DB1

SFB47
Common counter module
"COUNT"

Input	Pin	Pin	Output
	EN	ENO	
W#16#300	LADDR	STS_GATE	...
0	CHANNEL	STS_STRT	...
M255.0 (normally closed contact)	SW_GATE	STS_LTCH	...
...	CTRL_DO	STS_DO	...
...	SET_DO	STS_C_DN	...
M0.0	JOB_REQ	STS_C_UP	...
W#16#0	JOB_ID	COUNTVAL	MD20
...	JOB_VAL	LATCHVAL	...
		JOB_DONE	...
		JOB_ERR	...
		JOB_STAT	...

Network 2: Title:

I126.0, I126.1, M0.0, M0.0

Network 3: Title:

M0.0, CMP <D, Q125.0, MD20 — IN1, Q125.1, L#3000 — IN2, I126.2

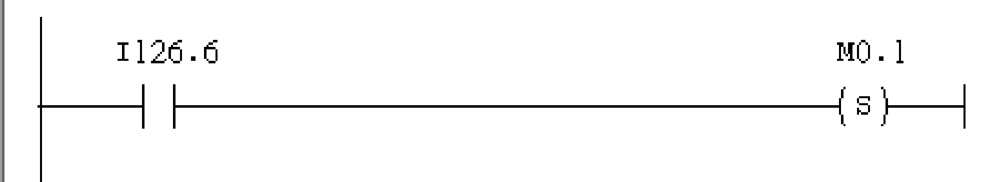


ماكينة المقص الكهربى:

Network 4 : Title:

M0.0 I126.2 CMP >=D M0.2 Q125.3 Q125.2
MD20 IN1
MD210 IN2
M0.2 M0.1 Q125.5 Q125.4
M0.1 I126.7 Q125.4 Q125.5
I126.7 Q125.2 I126.5 Q125.3

Network 5 : Title:



Network 6 : Title:

I126.4 M0.2
S



ماكينة المقص الكهربى:

Network 7 : Title:

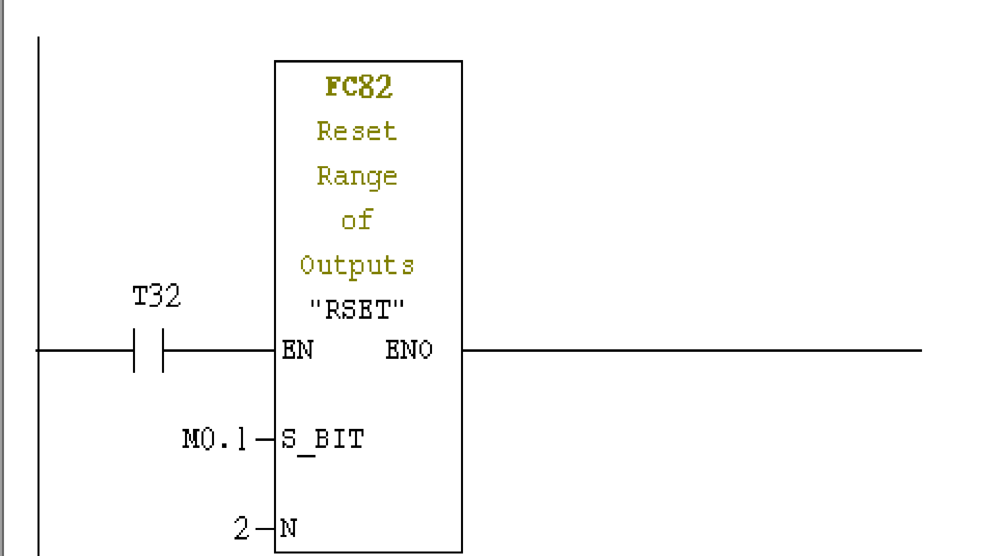
M0.0 M0.2 M255.0
I126.2 T32
S_ODT
S Q
S5T#10MS TV BI
... R BCD

Network 9 : Title:

MUL_DI
EN ENO
L#1000 IN1 OUT MD205
MD200 IN2

DIV_DI
EN ENO
MD205 IN1 OUT MD210
L#300 IN2





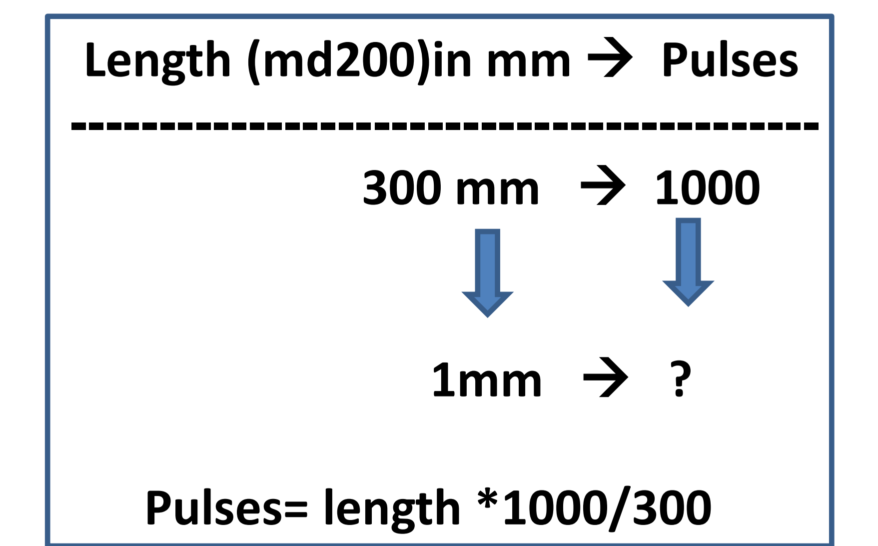


TABLE:



TABLE FORMAT:



Max. no. of entries	DB1.DBW0	5
Current no. of entries	DB1.DBW2	0
Entry1	DB1.DBW4	X
Entry2	DB1.DBW6	X
Entry3	DB1.DBW8	X
Entry4	DB1.DBW10	X
Entry5	DB1.DBW12	x

4 = CLEAR

4 = WORD

How to create TABLE?

TBL
FC88

I0.0

Input	Pin	Pin	Output
	EN	ENO	
P#DB1.DBX0.0	SRC	RET_VAL	MW0
B#16#04	CMD		
B#16#04	E_TYPE		

Error

MOVE

Input	Pin	Pin	Output
	EN	ENO	
5	IN	OUT	DB1.DBW0

TABLE:



Add Data to TABLE:

"ATT"
EN ENO
Word (input value) — DATA
DB1.DBW0 — TABLE

FC84 ATT TABLE
FC85 FIFO TABLE
FC86 TBL_FIND TABLE
FC87 LIFO TABLE
FC88 TBL TABLE

Extract Data from TABLE:

"FIFO"
EN ENO
DB1.DBW0 — TABLE RET_VAL — Word (out value)

من الأعلى للأسفل

"LIFO"
EN ENO
DB1.DBW0 — TABLE RET_VAL — Word (out value)

من الأسفل للأعلى

TABLE:



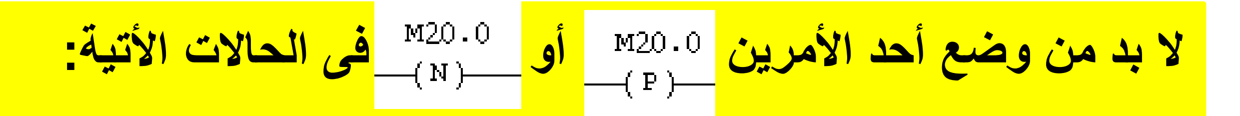
S7-200:

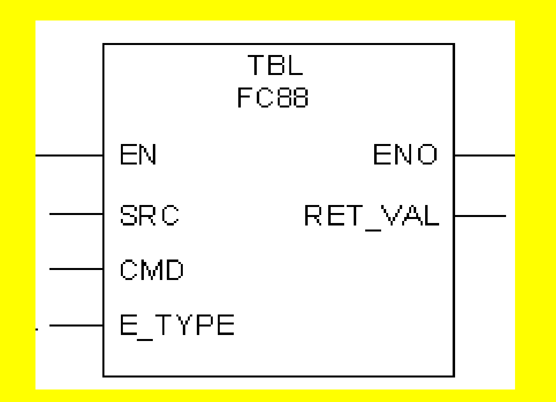
S7-300:

TABLE:

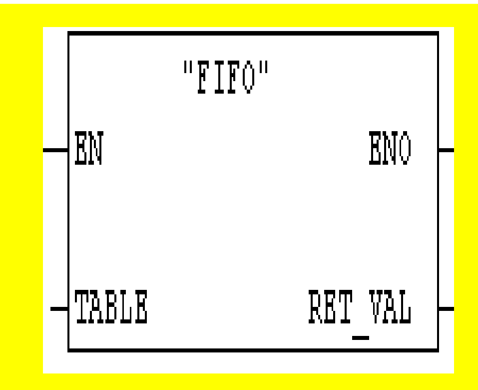
NOTE:



لا بد من وضع أحد الأمرين  أو في الحالات الأتية:







لو لم يتم وضع هذه الأوامر سيتم استخراج العناصر كلها مرة واحدة مع أول إشارة تعطى للبلوك

لو لم يتم وضع هذه الأوامر سيتم إضافة كل العناصر عند الضغط أو إعطاء الإشارة حتى يمتلأ الجدول بأكمله

لو لم يتم وضع هذه الأوامر سيتم تصفير عناصر الجدول لفترة طويلة قد تؤثر على إضافة العناصر المطلوبة



TABLE:

WANTED NETWORKS:

Network 1 Network Title

SM0.1 — FILL_N (EN, ENO; +0 – IN, OUT – MW2; 6 – N) — MOV_W (EN, ENO; +5 – IN, OUT – MW0)

Network 2

I0.0 — P — AD_T_TBL (EN, ENO; MW20 – DATA; MW0 – TBL)

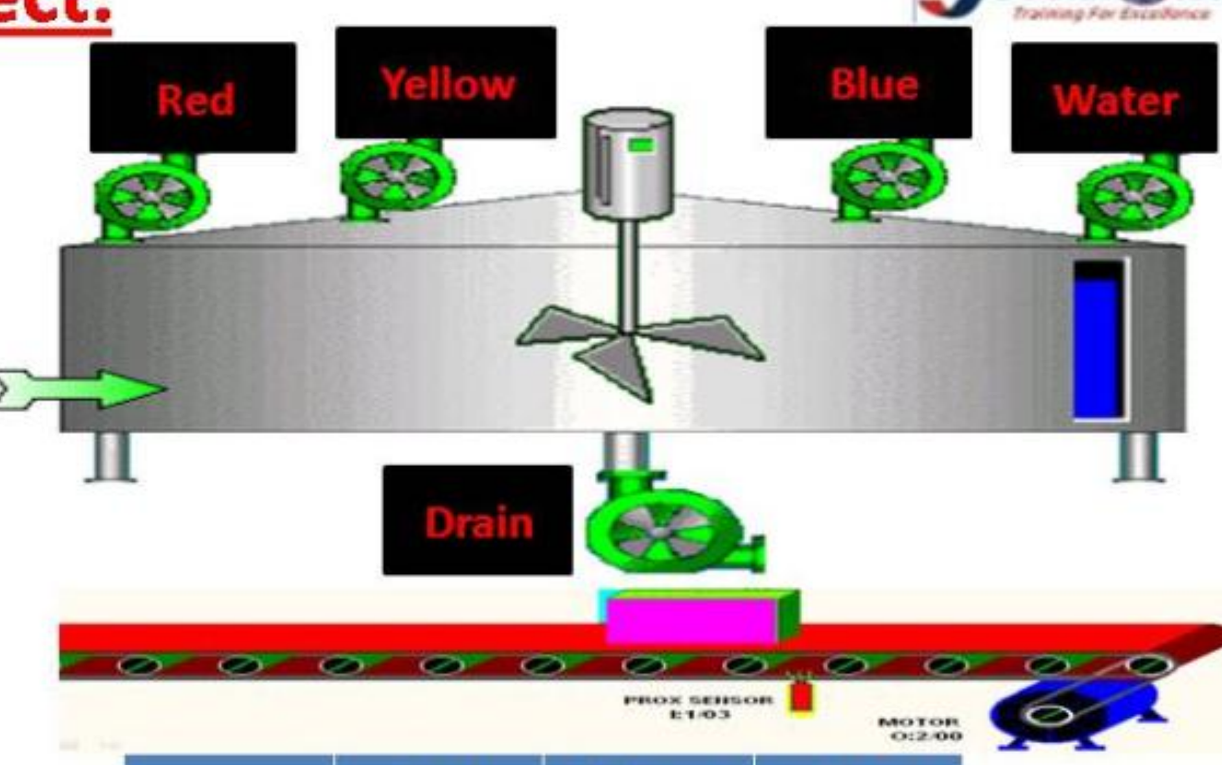
Network 3

I0.1 — P — FIFO (EN, ENO; MW0 – TBL, DATA – MW22)

MW0	5
MW2	0
MW4	X
MW6	X
MW8	X
MW10	X
MW12	x

Color mixing project:





	Red	Yellow	Blue
Red	100%	0%	0%
Yellow	0%	100%	0%
Blue	0%	0%	100%
Orange	60%	40%	0%
Green	0%	30%	70%
violet	80%	0%	20%

COLOR MIXING PROJECT:



i0.0 on
i0.1 off
i0.2 red
i0.3 yellow
i0.4 blue
i0.5 orange
i0.6 green
i0.7 violet
i1.0 level sensor
q0.0 red pump
q0.1 yellow pump
q0.2 blue pump
q0.3 mixer
q0.4 drain
q0.6 water pump

-- قبل البدء فى تنفيذ أى لون تعمل مضخة المياه بمصاحبة الخلاط لمدة 10 ثوانى ثم تعمل مضخة السحب إلى أن يفرغ الخزان.

-- الخلاط يعمل مع الألوان المختلطة فقط بحيث يبدأ عمله مع اللون الأطول زمنا ويستمر فى عمله بعد اللون الأطول زمنا لمدة 10 ثوانى ثم تعمل مضخة السحب إلى ان يفرغ الخزان.

-- طلب أى لون يسجل وينفذ بعد الإنتهاء من اللون الحالى.

1	RED
2	YELLOW
3	BLUE
4	ORANGE
5	GREEN
6	VIOLET

q0.5 belt
I1.1 belt sensor

COLOR MIXING PROJECT:



Network 1: Title:

I0.0 I0.1 M0.0
M0.0

Network 2: Title:

M255.0 M255.1
(S)

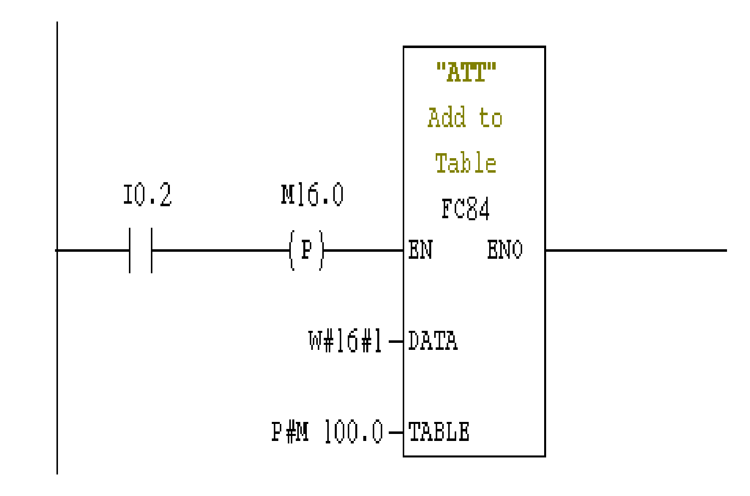
Network 3:

M255.1 M255.2 (P)

"TBL"
Table
FC88
EN ENO
P#M 100.0 – SRC RET_VAL – MW18
B#16#4 – CMD
B#16#4 – E_TYPE

MOVE
EN ENO
40 – IN OUT – MW10

Network 4: Title:



COLOR MIXING PROJECT:



Network 5 : Title:

I0.3 — M16.1 (P) — "ATT" Add to Table FC84: EN, ENO; DATA: W#16#2; TABLE: P#M 100.0

Network 6 : Title:

I0.4 — M16.2 (P) — "ATT" Add to Table FC84: EN, ENO; DATA: W#16#3; TABLE: P#M 100.0

Network 7 : Title:

I0.5 — M16.3 (P) — "ATT" Add to Table FC84: EN, ENO; DATA: W#16#4; TABLE: P#M 100.0

Network 8 : Title:

I0.6 — M16.4 (P) — "ATT" Add to Table FC84: EN, ENO; DATA: W#16#5; TABLE: P#M 100.0

Network 9 : Title:

I0.7 — M16.5 (P) — "ATT" Add to Table FC84: EN, ENO; DATA: W#16#6; TABLE: P#M 100.0

Network 10 : Title:

M2.2 — CMP ==I: IN1: MW200; IN2: 0 — M0.1 (R)

Network 11 : Title:

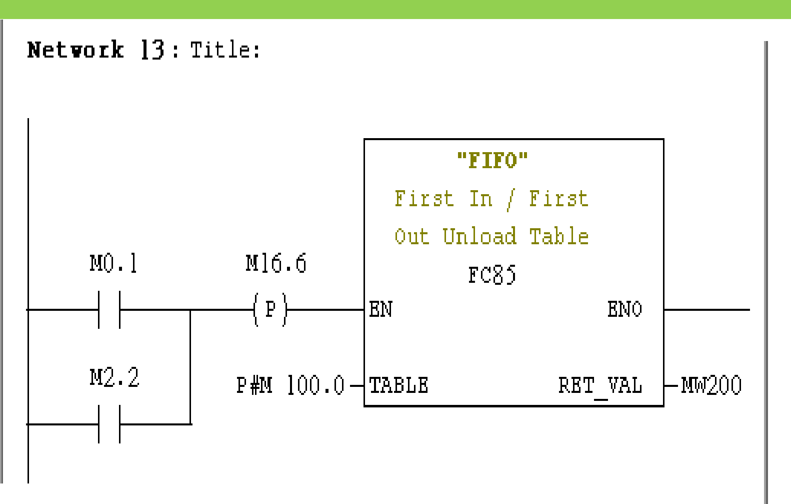
I0.0 — CMP <>I: IN1: MW104; IN2: 0 — M0.1 (S)

Network 12 : Title:

M2.2 — MOVE: EN, ENO; IN: 0; OUT: MW200

COLOR MIXING PROJECT:





Network 14 : Title:

M0.0

CMP ==I
MW200 — IN1
1 — IN2

CMP ==I
MW200 — IN1
2 — IN2

CMP ==I
MW200 — IN1
3 — IN2

CMP ==I
MW200 — IN1
4 — IN2

CMP ==I
MW200 — IN1
5 — IN2

CMP ==I
MW200 — IN1
6 — IN2

T37

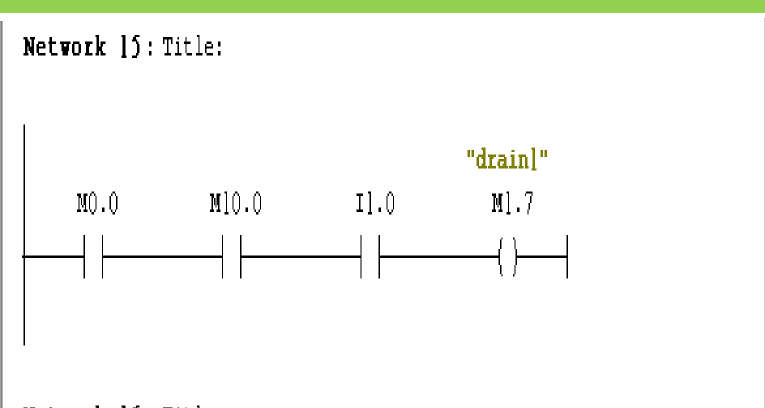
Q0.6
( )

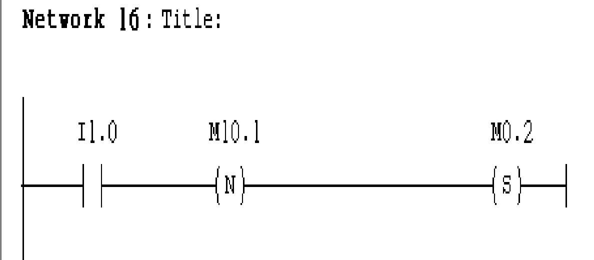
"mixer1"
M1.4
( )

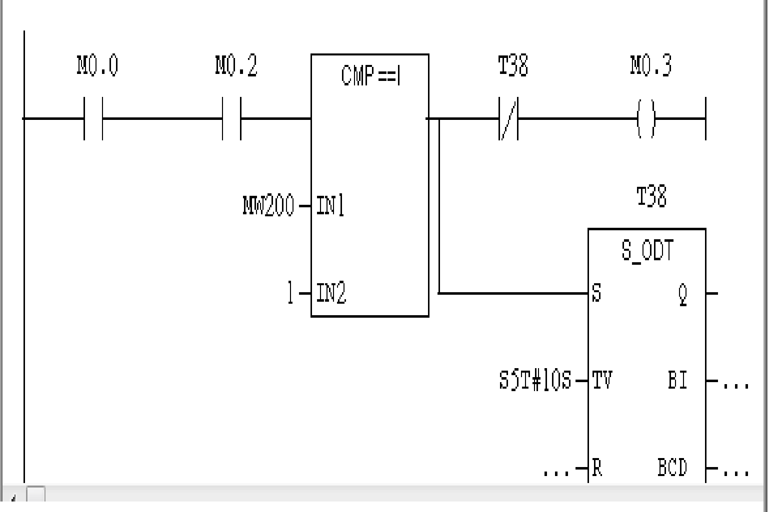
T37
S_ODT
S Q
S5T#10S — TV BI — ...
... — R BCD — ...

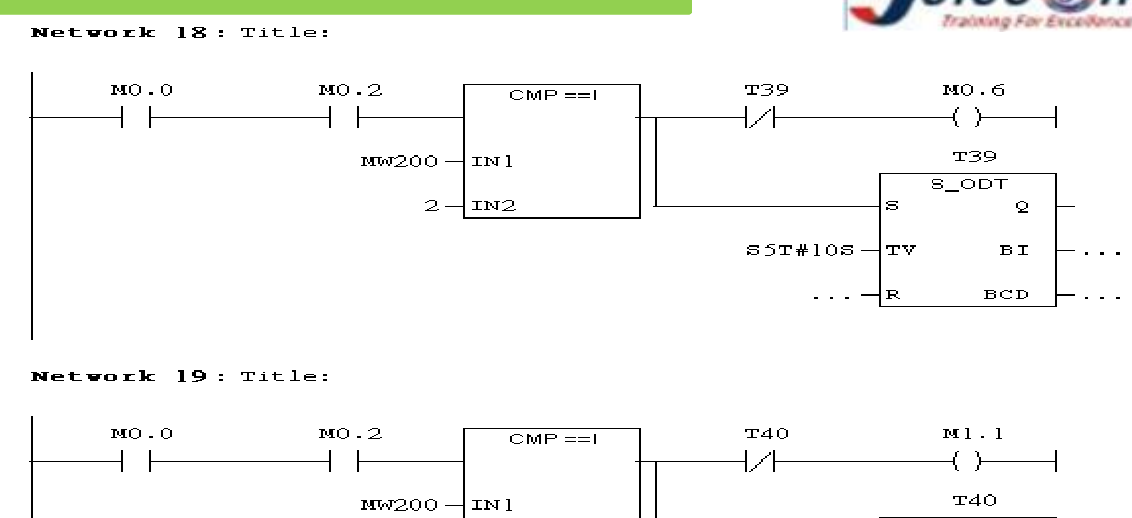
COLOR MIXING PROJECT:

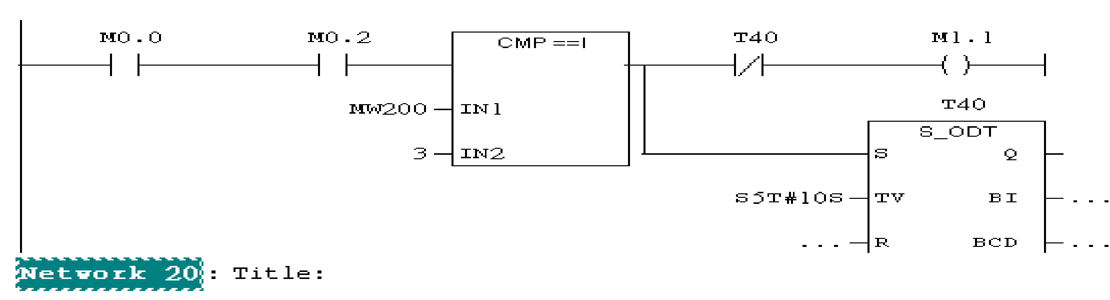


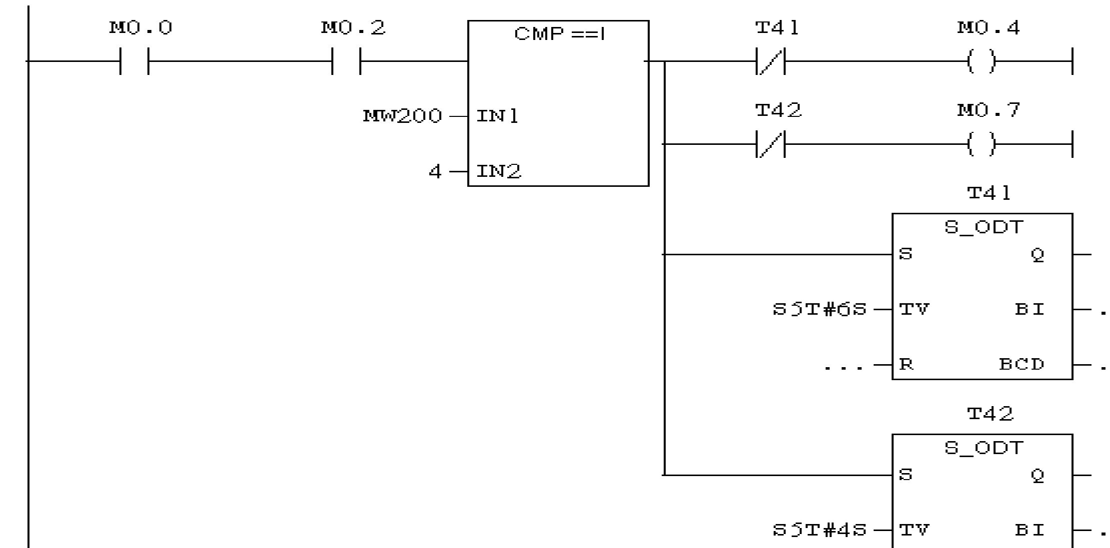












COLOR MIXING PROJECT:



Network 21 : Title:

M0.0, M0.2, CMP ==I (IN1: MW200, IN2: 5), T43, M1.0, T44, M1.2, T43 S_ODT (S, Q, TV: S5T#3S, BI, R, BCD), T44 S_ODT (S, Q, TV: S5T#7S, BI, R, BCD)

Network 22 : Title:

M0.0, M0.2, CMP ==I (IN1: MW200, IN2: 5), T45, M0.5, T46, M1.3, T45 S_ODT (S, Q, TV: S5T#8S, BI, R, BCD), T46 S_ODT (S, Q, TV: S5T#2S, BI, R, BCD)

Network 23 : Title:

M0.3, M0.4, M0.5, Q0.0

Network 24 : Title:

M0.6, M0.7, M1.0, Q0.1

Network 25 : Title:

M1.1, M1.2, M1.3, Q0.2

Network 26 : Title:

M0.0, M0.4, M1.2, M0.5, M1.5

COLOR MIXING PROJECT:



Network 27 : Title:

M0.0, T41, T47, M1.6, T44, T47, S_ODT, S, Q, T45, S5T#10S, TV, BI, R, BCD

Network 28 : Title:

M0.0, T47, I1.0, M2.0, T38, T39, T40

Network 29 : Title:

M1.4 "mixer1", Q0.3, M1.5, M1.6

Network 30 : Title:

M1.7 "drain1", I1.1, Q0.4, M2.0

Network 31 : Title:

I1.0, T47, M10.2 (N), M2.2, T38, M0.2 (R), T39, T40

Network 32 : Title:

M0.0, I1.1, Q0.5, M2.1

Network 33 : Title:

I1.0, M10.3 (N), I1.1, M2.1, M2.1

COLOR MIXING PROJECT:



Network 27 : Title:

M0.0 — T41 / T44 / T45 — T47 (NC) — M1.6 ( )

T47 S_ODT: S, TV = S5T#10S, R; Q, BI, BCD

Network 28 : Title:

M0.0 — T47 / T38 / T39 / T40 — I1.0 — M2.0 ( )

Network 29 : Title:

M1.4 "mixer1" / M1.5 / M1.6 — Q0.3 ( )

Network 30 : Title:

M1.7 "drain1" / M2.0 — I1.1 — Q0.4 ( )

Network 31 : Title:

I1.0 — T47 / T38 / T39 / T40 — M10.2 (N) — M2.2 ( ); M0.2 (R)

Network 32 : Title:

M0.0 — I1.1 (NC) / M2.1 — Q0.5 ( )

Network 33 : Title:

I1.0 — M10.3 (N) / M2.1 — I1.1 — M2.1 ( )

AUTOMATION COMPANIES IN EGYPT:



Egypt Smart Home

Egypt Smart Home

٢,٣ ★★★★★ 3 تعليقات

خدمة أمنية في مدينة الشروق، مصر

الاتصال بـ | اتجاهات السير | مشاركة | صفحة ويب

181 شارع الشباب - أسكان الشباب 100 متر - بجوار مدرسة الفيوتشر، محافظة القاهرة 11837

مفتوح اليوم ١٠ص–١٠م

0115 000 4344

العاشر من رمضان

شركه البنا للدواجن

Map data ©2017 Google, ORION-ME

سمارت اوتوميشن - مصر

الاتصال بـ | مشاركة

العاشر من رمضان، أكياد القبلية، مركز فاقوس، الشرقية

015 374356

AUTOMATION COMPANIES IN EGYPT:



MISC

٥,٠ ★★★★★ تعليقان (2)

مورد معدات صناعية في مصر

الاتصال بـ | اتجاهات السير | مشاركة | صفحة ويب

6 سيد زكريا، شيراتون المطار، قسم النزهة، محافظة القاهرة 11361

مفتوح اليوم ٩ص–٥م

02 22680994

اسيك للتحكم الالى

٣,٦ ★★★★ 7 تعليقات

مهندس كهرباء في مصر

الاتصال بـ | اتجاهات السير | مشاركة | صفحة ويب

6 ش 308، البساتين الشرقية، المعادي، محافظة القاهرة

مفتوح اليوم ٨ص–٥م

02 27042601

AUTOMATION COMPANIES IN EGYPT:



الكترو هيدروليك اوتوميشن - اى اتش اية

٣,٠ ★★★★★ تعليق واحد

الاتصال بـ | مشاركة | صفحة ويب

74 ahmed essmat st.، الزهراء ومساكن الحلمية، قسم عين شمس، محافظة القاهرة

02 24941760

Map data ©2017 Google, ORION-ME

هاك اوتوميشن

الاتصال بـ | اتجاهات السير | مشاركة

58 متفرع من ش مصدق، الدقي، الجيزة

02 37612747

DISTRIBUTION COMPANIES IN EGYPT:







	B	C	D	E	F	G
1	اسم المجموعة او المكتب	عدد الفروع	الفروع	العنوان	التليفونات	الفاكس
2	المجموعة الاستشارية شاكر	3	المعادي	مبنى رقم 2075 و 2078 مدينه المعراج - المعادى	02-25204500 - 02-25204501 - 02-252045	02-25204505
3			المهندسين	45 شارع محمد حسن حلمي - المهندسين	02-33454113 - 02-33454972	
4			بولاق الدكرور	شارع علي ابوعيطه - بولاق الدكرور	02-33287651	
5	مكتب المهندس الاستشاري صبور و شركاه	1	الدقي	20 شارع لطفي حسونه - الدقي	02-37613140	
6	ECG - جماعة المهندسين الاستشاريين	3	مدينة نصر	عمارة 2 - بلوك 10 - حي السفارات , مدينة نصر	02-22744740	02-22744748
7			الاسكندرية	16 ش ابراهيم نصير لوران الاسكندرية	03-5820322	
8			القرية الذكية	طريق الاسكندرية القاهرة الصحراوى الاسكندرية	02-22744740	
9	ACE Consulting Engineers	2	Dokki	5 El-Gomhouria El-Mottaheda Square Dokki, Cairo	+202 33 37 71 20, 33 36 17 47 / 78 39	202 37 49 82 54
10	Moharram.Bakhoum		Cairo Downtown	2 Champollion Street- Cairo Downtown	202 25 74 48 76 / 11 17, 25 75 36 10	+202 25 78 44 58
11	المهندسون الاستشاريون العرب	1	المهندسين	3 ش عبد القوى احمد-المهندسين الجيزة	02-33020841	
12	المجموعة الاستشارية للعمارة وتنمية البيئة	1		6 شارع المتحف الزراعي – دقي – القاهرة – مصر	+202 7487005 & +202 3380538	+202 7487005
13	مجموعه ابو الخير الاستشاريه - دكتور م احمد ابو الخير بدر	1		98 شارع التحرير - الدقي - القاهره - مصر	02-33388748	
14	مكتب هندسي استشاري محمود خليل المشتب	1		16 شارع منشيه الطيران - مصر الجديده - القاهره - مصر	02-24140925	
15	المكتب العلمي للهندسة الكهروميكانيكية	1		ش الشيخ احمد ابراهيم - النزهة - الدور 3 شقة 3 الالف مسكن	02-26351176, 0100-1112131	
16	المحمودية العامة للمقاولات والاستثمار العقاري	1		1 ش عصام الدالي - الدقي, الجيزة	02-33363691	02-33362413
17	مختار ابراهيم للمقاولات	1		199 امتداد شارع 26 يوليو / العجوزة / القاهرة		
18	المقاولون العرب | المركز الرئيسي	3		34 ش عدلي - القاهرة	02 23959500- 02 23959522	02 23937674
19	المقاولون العرب / الإدارة العامة للإستشارات الهندسية			26 ش الجمهورية القاهرة	002 02 2390 35 50	002 02 2390 39 99
20	المقاولون العرب /قطاع الإحتياجات والعطاءات			11 شارع دكتور يسرى جوهر - مدينة نصر	002 02 2403 89 84	002 02 2262 15 84
21	SODIC	3	Sheikh Zayed	Km 38 Cairo-Alexandria Desert Road,Sheikh Zayed City	02 3857 0061-3	02 3857 0060
22			Zamalek	Abou El Feda St.,Abou El FedaCommercial Tower, Zamalek 3	02 2737 6010/2737 6019	
23			:Heliopolis	El Thawra St., Heliopolis 46	02 2290 3491/2290 3597/2290 4393	
24	Orascom Hotels and Development	2	Corniche El Nil	Nile City Towers, South Tower, 9th Floor 2005 A Corniche El Nil	02 2461 8999	02 2461 9977
25	Orascom Construction Industries		Corniche El Nil	Nile City Towers,Corniche El Nil	0 2 2461 1111	
26	وادي النيل للمقاولات والاستثمارات العقارية			7 طريق النصر المنطقة السادسة , مدينة نصر, القاهرة	16640, 02-26900893, 02-26900901, 02-26900903	
27	الشركة الوطنية للمقاولات العامة والتوريدات		مدينة نصر	14 ش محمود طلعت من الطيران	22611596	22608230
28	Egyptian For Coastal Construction - ECC		,Heliopolis	65 El Maqrizy St. Roxy, Heliopolis, Cairo	02-22591985	
29	ابناء حسن علام	1	Sheraton Heliopolis	Yehia Zakaria St., Industrial Zone - lot 5, Sheraton Heliopolis Housing, Cairo, Egypt	02 22666 917	02 22666 920
30	الاسكندرية للانشاءات - طلعت مصطفى	2	المركز الرئيسي- الأسكندرية	- محرم بك- ميدان الطريق الصحراوى- ص.ب. 754- الأسكندرية	3600267 (203) - 3601376 (203)	3600278 (203)
31			فرع القاهرة	34، 36 ش مصدق - الدقي – جيزة ص.ب. رقم 12311	33315600 (202) - 33312000 (202)	33360437 (202) - 3336

DISTRIBUTION COMPANIES IN EGYPT:

	B	C	D	E	F	G
1	اسم المجموعة او المكتب	عدد الفروع	الفروع	العنوان	التليفونات	الفاكس
32	المجموعة الإستشارية للدراسات المتكاملة وإدارة المشروعات WECG,	1		ش الجزائر متفرع من ش جامعة الدول العربية المهندسين, الجيزة	0122-9500411, 02-33038810, 02-33038820, 02-33038830	02-33038850
33	مركز تطوير البناء	1		38 ش احمد الصاوى من مكرم عبيد مدينة نصر, القاهرة	02-22757438, 02-26703241, 02-267032	02-22758797
34	ارت فيجين معماريون ومهندسون	1		عمارة الفيروز . عمارات رابعة الاستثمارى . طريق النصر مدينة نصر, القاهرة	0114-0477744, 02-24170251	02-24170251
35	مكتب التصميمات الميكانيكية الكهربائية (MED)	1		26 ش سوريا المهندسين, الجيزة	02-33386292, 02-37489121	02-33386292
36	اريا للعمارة والتصميم الداخلي	1		عمارات الفسطاط . ش الفسطاط شقة 34 .امام متحف الحضارة الفسطاط, القاهرة	0122-3976791	
37	الاستشاريون العرب	1		9 ش عدلي وسط البلد, القاهرة	02-23960914, 02-23960915	
38	الخبراء الفنيون للاستشارات الهندسية وإدارة المشاريع	1		عماد الدين كامل متفرع من ش عباس العقاد المنطقة الاولي, مدينة نصر, القاهرة	02-24050709	02-24023999
39	المجموعة المتحدة للاستشارات الهندسية	1		15ش عبد الخالق ثروت وسط البلد, القاهرة	0122-2315803	
40	انرجي جروب للهندسة والاستشارات	1		461 ش سكة الوايلي تقسيم الجمعية حدائق القبة, القاهرة	26015207	02-24536676
41	تكنو كونسلت . الخدمات الهندسية والاستشارية	1		14 أ ش كليوباترا . الكوربة مصر الجديدة, القاهرة	0100-2118550, 02-24180700	02-24187875
42	GAAFAR GROUP CONSULTANTS			1 شارع الشيخ محمد رفعت . ميدان المحكمة . مصر الجديدة . 11351- القاهرة.	26382713	26426284
43	نوتاليتي . الخبرات الدولية المتكاملة			79 هـ طريق النصر مدخل 2 - بجوار طيبة مول ، مدينة نصر	24010245	
44	جدوى للاستشارات			51 ش لبنان المهندسين, الجيزة	02-33472444	
45	جلوبال للاستشارات الاستراتيجية			13 ش ابراهيم نجيب جاردن سيتي, القاهرة	02-27926285, 02-27926286	
46	جودة للاستشارات الهندسية			73 ش عمر بن الخطاب مصر الجديدة, القاهرة	0106-3179966, 0106-8800141, 02-24173486,	02-24186445
47	حمزة وشركاه			5 ش ابن مروان الدقي, الجيزة	02-37607238	
48	خالد عويضة ومشاركوه للاستشارات الهندسية			84 ش الميرغني كلية البنات, مصر الجديدة, القاهرة	02-24140071	
49	دار الاستشارات الهندسية – د. م. احمد رأفت ابو طبيخ			71 - تعاونيات سموحة سموحة, الاسكندرية	03-4252497, 03-6444539	
50	دار الخليج للاستشارات الهندسية			24ش فوزى المطيعى ميدان الاسماعيلية, مصر الجديدة, القاهرة	03-4252497	
51	فاين تاتش للاستشارات الهندسية	2	القاهرة الجديدة	التجمع الخامس القاهرة الجديدة, القاهرة	02-26171945	
52			المقطم	ش 9 المقطم, القاهرة	02-25084057	

EMBEDED COMPANIES IN EGYPT:

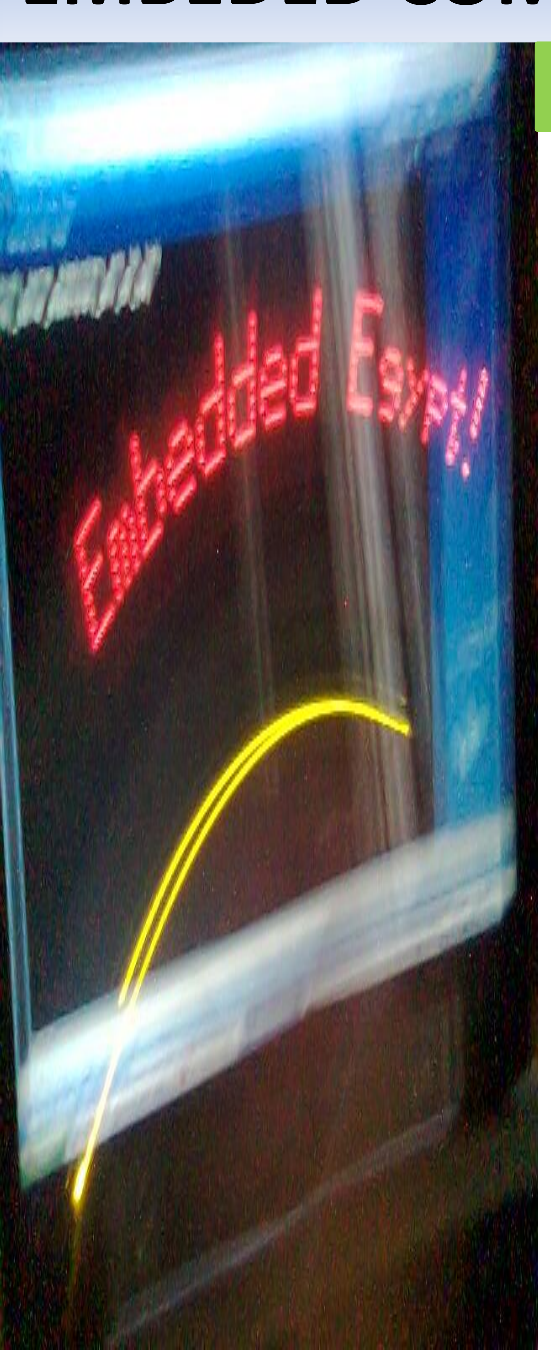


CAIRO

1- ALFA ELECTRONICS
2- AXXCELERA
3- AVELABS
4- ATI SYSTEMS INC
5- ALMANAR
6- ASSET TECHNOLOGY
7- AUTOMATION CONSULTANTS
8- ARTRONIX
9- ATMEL
10- AUTOSYS
11- BIRD ICT
12- BACCAH
13- BIOBUSINESS-EG
14- BRILLIANCE TECH
15- CIT GLOBAL
16- CATALYST BUSINESS SOLUTIONS
17- CONSULTIX
18- CENEERING
19- CONNECT IT
20- CREATIVE-BITS

EMBEDED COMPANIES IN EGYPT:





CAIRO

21- ENGINEERING OFFICE FOR INTEGRATED PROJECTS - EOIP
22- EDGE TECHNOLOGY
23- EGY AUDIO - INTERNATIONAL ELECTRICAL PRODUCTS (IEP)
24- ELSEWEDY ELECTROMETER
25- EGYTRONIX
26- EXNEER
27- ENERGY SAVING FACTORY
28- EID SOLUTIONS
29- EJAD
30- GST
31- GLOBALTRONICS S.A.E.
32- HITTITE MICROWAVE EGYPT
33- 3HANDSEG
34- HYPER EMBEDDED SYSTEMS
35- HIDELENA
36- INVRONICS TECHNOLOGY EGYPT
37- IPNEO
38- ISS HOLDING
39 - INTEGREIGHT
40- INNOVA EGYPT

EMBEDED COMPANIES IN EGYPT:



CAIRO

41- IDT SYSTEMS
42- ICPEDIA
43- IST NETWORK
44- JAMA ELECTRONICS
45- KARMSOLAR
46- LOGICA CGI
47 - MAGICVISION
48- MAZID LABS
49- MODERN TECHNOLOGY SUPPLY & ENGINEERING
50- MENTRONIX
51- NWEAVE
52- NEWPORT MEDIA
53- NMA TECHNOLOGIES
54- PYRAMID SYSTEMS DEVELOPMENT PSD
55- QUICKTEL
56- QOUDRA
57- QEYE - SMART VISION SYSTEM
58- REEM
59- SILGENIX
60- SMARTEC

EMBEDED COMPANIES IN EGYPT:



CAIRO

61- SI-WARE SYSTEMS
62- SILMINDS
63- SMART DESGIN
64- SCADA INNOVATIONS
65- SHEIMYMICRO
66- SIOXIDE
67- SOFTLOCK
68- SMART ENGINEERING SOLUTION
69- STARKBITS
70- TAHACKOM
71- TTC TECHNOLOGIES LTD
72- THIRDWAYV
73- UNIVERSAL ADVANCED SYSTEMS (UAS)
74- VERTEX LLC
75- VERTEX TECHNOLOGIES
76- WAHA MICROSYSTEMS
77- WISSAM ELECTRONICS
78- XCELTRA
79- XONEBEE

MANSOURA

80- EDUTKS

EMBEDED COMPANIES IN EGYPT:



ALEXANDRIA

81- EVENTUM IT SOLUTIONS
82- GLOBAL IMPACT
83- MAS
84- QUINDEV
85- THINKODE



THANK YOU

Eng./ Mohammed Magdy